

# SEQUENCE LISTING

<110> Walke, D. Wade  
Scoville, John

<120> Novel Human Semaphorin Proteins and Polynucleotides Encoding the Same

<130> LEX-0255-USA

<150> US 60/241,194

<151> 2000-10-17

<160> 35

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2304

<212> DNA

<213> homo sapiens

<400> 1

atgcccagcc	agggcaggg	ggagagctgc	agctgcaggt	ccggaggcgg	gggcccccg	60
ggcgactcgg	gggcggaccg	cggggcggag	ctgccgccc	tgagtccggc	cgagccacct	120
gagcccagac	cgcgggacac	cgctcgctcct	gctctccgaa	tgctgcgcac	cgcatgggc	180
ctgaggagct	ggctcgccgc	cccatggggc	gcgctgccgc	ctcgccacc	gctgctgctg	240
ctcctgctgc	tgctgctcct	gctgcagccg	ccgcctccga	cctgggcgct	cagcccccg	300
atcagcctgc	ctctgggctc	tgaagagcgg	ccattcctca	gattcgaagc	tgaacacatc	360
tccaactaca	cagcccttct	gctgagcagg	gatggcagga	ccctgtacgt	gggtgctcga	420
gaggccctct	ttgcactcag	tagcaacctc	agcttctctg	caggcgggga	gtaccaggag	480
ctgctttggg	gtgcagacgc	agagaagaaa	cagcagtgca	gcttcaagg	caaggaccca	540
cagcgcgact	gtcaaaacta	catcaagatc	ctcctgccgc	tcagcggcag	tcacctgttc	600
acctgtggca	cagcagcctt	cagccccatg	tgtacctaca	tcaacatgga	gaacttcacc	660
ctggcaagg	acgagaagg	gaatgtcctc	ctggaagatg	gcaagggccg	ttgtcccttc	720
gaccgaatt	tcaagtcac	tgccctgggt	gttgatggcg	agctctacac	tggaacagtc	780
agcagcttcc	aagggaatga	cccgccatc	tcgcggagcc	aaagccttcg	ccccaccaag	840
accgagagct	ccctcaactg	gctgcaagac	ccagcttttg	tggcctcagc	ctacattcct	900
gagagcctgg	gcagcttgca	aggcgatgat	gacaagatct	actttttctt	cagcgagact	960
ggccagggaat	ttgagttcct	tgagaacacc	attgtgtccc	gcattgcccg	catctgcaag	1020
ggcgatgagg	gtggagagcg	ggtgctacag	cagcgctgga	cctccttcct	caaggcccag	1080
ctgctgtgct	cacggcccga	cgatggcttc	cccttcaacg	tgctgcagga	tgtcttcacg	1140
ctgagcccca	gccccagga	ctggcgtagc	acccttttct	atgggggtctt	cacttcccag	1200
tggcacagg	gaactacaga	aggctctgcc	gtctgtgtct	tcacaatgaa	ggatgtgcag	1260
agagtcttca	gcggcctcta	caaggagggtg	aaccgtgaga	cacagcagtg	gtacaccgtg	1320
accaccccg	tgcccacacc	ccggcctgga	gcgtgcatca	ccaacagtg	ccgggaaagg	1380
aagatcaact	catccctgca	gctoccagac	cgcgtgctga	acttcctcaa	ggaccacttc	1440
ctgatggacg	ggcaggtccg	aagccgcag	ctgctgctgc	agccccaggc	tcgctaccag	1500
cgctggctg	tacaccgcgt	ccctggcctg	caccacacct	acgatgtcct	cttccctggc	1560
actggtgacg	gcccgtcca	caaggcagtg	agcgtggg	cccgggtgca	catcattgag	1620
gagctgcaga	tcttctcatc	gggacagccc	gtgcagaatc	tgctcctgga	caccacag	1680
gggtgctgt	atgcggcctc	acactcgggc	gtagtccagg	tgcccatggc	caactgcagc	1740
ctgtacagga	gctgtgggga	ctgcctcctc	gcccgggacc	cctactgtgc	ttggagcggc	1800
tccagctgca	agcacgtcag	cctctaccag	cctcagctgg	ccaccaggcc	gtggatccag	1860
gacatcgagg	gagccagcgc	caaggacctt	tgacgcgct	cttcggttgt	gtccccgtct	1920
tttgtaccaa	caggggagaa	gccatgtgag	caagtccagt	tccagcccaa	cacagtgaac	1980

actttggcct gcccgctcct ctccaacctg ggcacccgac tctggctacg caacggggcc 2040  
 cccgtcaatg cctcggcctc ctgccacgtg ctacccactg gggacctgct gctggtgggc 2100  
 acccaacagc tgggggagtt ccagtgtctg tccactagagg agggcttcca gcagctggta 2160  
 gccagctact gccagaggt ggtggaggac ggggtggcag accaaacaga tgagggtggc 2220  
 agtgtacccg tcattatcag cacatcgcgt gtgagtgcac ccagcaccg gctggggcct 2280  
 gtccctggat gcaggctact ctacg 2304

<210> 2  
 <211> 767  
 <212> PRT  
 <213> homo sapiens

<400> 2  
 Met Pro Ser Gln Gly Arg Val Glu Ser Cys Ser Cys Arg Ser Gly Gly  
 1 5 10 15  
 Gly Gly Pro Arg Gly Asp Ser Gly Ala Asp Arg Gly Ala Glu Leu Pro  
 20 25 30  
 Pro Val Ser Pro Ala Glu Pro Pro Glu Pro Glu Pro Arg Asp Thr Val  
 35 40 45  
 Ala Pro Ala Leu Arg Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp  
 50 55 60  
 Leu Ala Ala Pro Trp Gly Ala Leu Pro Pro Arg Pro Pro Leu Leu Leu  
 65 70 75 80  
 Leu Leu Leu Leu Leu Leu Leu Gln Pro Pro Pro Thr Trp Ala  
 85 90 95  
 Leu Ser Pro Arg Ile Ser Leu Pro Leu Gly Ser Glu Glu Arg Pro Phe  
 100 105 110  
 Leu Arg Phe Glu Ala Glu His Ile Ser Asn Tyr Thr Ala Leu Leu Leu  
 115 120 125  
 Ser Arg Asp Gly Arg Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe  
 130 135 140  
 Ala Leu Ser Ser Asn Leu Ser Phe Leu Pro Gly Gly Glu Tyr Gln Glu  
 145 150 155 160  
 Leu Leu Trp Gly Ala Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys  
 165 170 175  
 Gly Lys Asp Pro Gln Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu  
 180 185 190  
 Pro Leu Ser Gly Ser His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser  
 195 200 205  
 Pro Met Cys Thr Tyr Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp  
 210 215 220  
 Glu Lys Gly Asn Val Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe  
 225 230 235 240  
 Asp Pro Asn Phe Lys Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr  
 245 250 255  
 Thr Gly Thr Val Ser Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg  
 260 265 270  
 Ser Gln Ser Leu Arg Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu  
 275 280 285  
 Gln Asp Pro Ala Phe Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly  
 290 295 300  
 Ser Leu Gln Gly Asp Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr  
 305 310 315 320  
 Gly Gln Glu Phe Glu Phe Phe Glu Asn Thr Ile Val Ser Arg Ile Ala  
 325 330 335

Arg	Ile	Cys	Lys	Gly	Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg
			340					345					350		
Trp	Thr	Ser	Phe	Leu	Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp
		355					360					365			
Gly	Phe	Pro	Phe	Asn	Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser
	370					375					380				
Pro	Gln	Asp	Trp	Arg	Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln
385					390					395					400
Trp	His	Arg	Gly	Thr	Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met
			405						410					415	
Lys	Asp	Val	Gln	Arg	Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg
		420						425					430		
Glu	Thr	Gln	Gln	Trp	Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg
	435						440					445			
Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser
	450					455					460				
Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe
465					470					475					480
Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln
			485						490					495	
Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His
		500						505					510		
Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys
	515						520					525			
Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile
	530					535					540				
Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg
545					550					555					560
Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met
			565						570					575	
Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg
		580						585					590		
Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu
	595						600					605			
Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly
	610					615					620				
Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser
625					630					635					640
Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro
			645						650					655	
Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr
		660						665					670		
Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys
	675					680						685			
His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu
	690					695					700				
Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val
705					710					715					720
Ala	Ser	Tyr	Cys	Pro	Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr
			725						730					735	
Asp	Glu	Gly	Gly	Ser	Val	Pro	Val	Ile	Ile	Ser	Thr	Ser	Arg	Val	Ser
		740						745					750		
Ala	Pro	Ser	Thr	Arg	Leu	Gly	Pro	Val	Pro	Gly	Cys	Arg	Leu	Leu	
	755						760					765			

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80																				

atgccacgcc	agggcagggt	ggagagctgc	agctgcaggt	ccggaggcgg	gggccccgg	60
ggcgactcgg	gggcggagcg	gggggcggag	ctgccgcccg	tgagtcggcg	cgagccacct	120
gagccccgagc	cgcgggacac	cgtcgctcct	gctctccgaa	tgtctgcgcac	cgcgatgggc	180
ctgaggagct	ggctcgccgc	cccatggggc	gcgctgccgc	ctcggccacc	gctgctgctg	240
ctctgctgc	tgtgctcct	gctgcagccg	ccgcctccga	cctgggcgct	cagcccccg	300
atcagcctgc	ctctgggctc	tgaagagcgg	ccattcctca	gattcgaagc	tgaacacatc	360
tccaactaca	cagcccttct	gctgagcagg	gatggcagga	ccctgtacgt	gggtgctcga	420
gaggccctct	ttgcactcag	tagcaacctc	agcttcctgc	caggcgggga	gtaccaggag	480
ctgctttggg	gtgcagacgc	agagaagaaa	cagcaagtgc	gcttcaaggg	caaggaccca	540
cagcgcgact	gtcaaaacta	catcaagatc	ctcctgccgc	tcagcggcag	tcacctgttc	600
acctgtggca	cagcagcctt	cagcccatg	tgtacctaca	tcaacatgga	gaacttcacc	660
ctggcaaggg	acgagaaggg	gaatgtcctc	ctggaagatg	gcaagggccg	ttgtcccttc	720
gacccgaatt	tcaagtccac	tgccttggtg	gttgatggcg	agctctacac	tggaacagtc	780
agcagcttcc	aagggaatga	cccgccatc	tcgcggagcc	aaagccttcg	ccccaccaag	840
accgagagct	ccctcaactg	gctgcaagac	ccagcttttg	tggcctcagc	ctacattcct	900
gagagcctgg	gcagcttgca	aggcgatgat	gacaagatct	acttttctct	cagcagact	960
ggccaggaat	ttgagttctt	tgagaacacc	attgtgtccc	gcattgcccg	catctgcaag	1020
ggcgatgagg	gtggagagcg	ggtgctacag	cagcgcctgga	cctccttctt	caaggcccag	1080
ctgctgtgct	cacggcccga	cgatggcttc	cccttcaacg	tgtctcagga	tgtcttcacg	1140
ctgagcccca	gccccagga	ctggcgtagc	acccttttct	atggggtctt	cacttcccag	1200
tggcacaggg	gaactacaga	aggctctgcc	gtctgtgtct	tcacaatgaa	ggatgtgcag	1260
agagtcttca	gcggcctcta	caaggagggtg	aaccgtgaga	cacagcagtg	gtacaccgtg	1320
accaccccg	tggccacacc	ccggcctgga	gcgtgcatca	ccaacagtg	ccgggaaagg	1380
aagatcaact	catccctgca	gctcccagac	cgctgtctga	acttctctca	ggaccacttc	1440
ctgatggacg	ggcaggtccg	aagccgcgat	ctgctgctgc	agccccaggc	tcgctaccag	1500
cgcgtggctg	tacaccgcgt	ccctggcctg	caccacacct	acgatgtcct	cttctctggc	1560
actggtgacg	gccggctcca	caaggcagtg	agcgtgggcc	ccggggtgca	catcattgag	1620
gagctgcaga	tcttctcatc	gggacagccc	gtgcagaatc	tgtccttgga	caccacagg	1680
gggctgctgt	atgggcctc	acactcgggc	gtagtccagg	tgcccatggc	caactgcagc	1740
ctgtacagga	gctgtgggga	ctgcctcctc	gcccgggacc	cctactgtgc	ttggagcggc	1800
tccagctgca	agcacgtcag	cctctaccag	cctcagctgg	ccaccaggcc	gtggatccag	1860
gacatcgagg	gagccagcgc	caaggacctt	tgcagcgcgt	cttcggttgt	gtccccgtct	1920
tttgtacca	caggggagaa	gccatgtgag	caagtcacgt	tccaggccaa	cacagtgaac	1980
actttggcct	cccgctcctc	ctccaacctg	gcgaccgcac	tctggctacg	caacggggcc	2040
cccgctcaatg	cctcggcctc	ctgccacctg	ctaccactg	gggacctgct	gctgggtggc	2100
acccaacagc	tgggggagtt	ccagtgtctg	tcactagagg	agggcttcca	gcagctggta	2160
gccagctact	gcccagaggt	ggtggaggac	ggggtggcag	accaaacaga	tacggtgcc	2220
acaccccggc	ctggagcgtg	catcaccaac	agtgcccg	aaaggaagat	caactcatcc	2280
ctgcagctcc	cagaccgcgt	gctgaacttc	ctcaaggacc	acttctgat	ggacgggcag	2340
gtccgaagcc	gcatgctgct	gctgcagccc	caggctcgct	accagcgcgt	ggctgtacac	2400
cgcgtccctg	gcctgcacca	cacctacgat	gtcctcttcc	tgggcactgg	tgacggcccg	2460
ctccacaagg	cagtgagcgt	gggcccccg	gtgcacatca	ttgaggagct	gcagatcttc	2520
tcatcgggac	agcccgtgca	gaatctgctc	ctggacaccc	acagggggct	gctgtatgcg	2580
gcctcacact	cgggcgtagt	ccaggtgccc	atggccaact	gcagcctgta	caggagctgt	2640
ggggactgcc	tcctcgcccc	ggacccctac	tgtgcttgga	gcggctccag	ctgcaagcac	2700
gtcagcctct	accagcctca	gctggccacc	aggccgtgga	tccaggacat	cgagggagcc	2760
agcgccaagg	acctttgcag	cgcgtcttcg	gttgtgtccc	cgtcttttgt	accaacagg	2820
gagaagccat	gtgagcaagt	ccagttccag	cccaacacag	tgaacacttt	ggcctgccc	2880
ctcctctcca	acctggcgac	ccgactctgg	ctacgcaacg	gggccccgct	caatgcctcg	2940
gcctcctgcc	acgtgttacc	cactggggac	ctgctgctgg	tgggcactgg	agtagcacct	3000
tccacgacca	ggagaggcac	tggggagggg	tcacagggat	gccacccggg	cagacctgag	3060



370	375	380
Pro Gln Asp Trp Arg	Asp Thr Leu Phe Tyr Gly	Val Phe Thr Ser Gln
385	390	395
Trp His Arg Gly Thr	Glu Gly Ser Ala Val Cys	Val Phe Thr Met
405	410	415
Lys Asp Val Gln Arg	Val Phe Ser Gly Leu Tyr Lys	Glu Val Asn Arg
420	425	430
Glu Thr Gln Gln Trp	Tyr Thr Val Thr His Pro	Val Pro Thr Pro Arg
435	440	445
Pro Gly Ala Cys Ile	Thr Asn Ser Ala Arg Glu	Arg Lys Ile Asn Ser
450	455	460
Ser Leu Gln Leu Pro	Asp Arg Val Leu Asn Phe	Leu Lys Asp His Phe
465	470	475
Leu Met Asp Gly Gln	Val Arg Ser Arg Met Leu	Leu Leu Gln Pro Gln
485	490	495
Ala Arg Tyr Gln Arg	Val Ala Val His Arg Val	Pro Gly Leu His His
500	505	510
Thr Tyr Asp Val Leu	Phe Leu Gly Thr Gly Asp	Gly Arg Leu His Lys
515	520	525
Ala Val Ser Val Gly	Pro Arg Val His Ile Ile	Glu Glu Leu Gln Ile
530	535	540
Phe Ser Ser Gly Gln	Pro Val Gln Asn Leu Leu	Leu Asp Thr His Arg
545	550	555
Gly Leu Leu Tyr Ala	Ala Ser His Ser Gly Val	Val Gln Val Pro Met
565	570	575
Ala Asn Cys Ser Leu	Tyr Arg Ser Cys Gly Asp	Cys Leu Leu Ala Arg
580	585	590
Asp Pro Tyr Cys Ala	Trp Ser Gly Ser Ser Cys	Lys His Val Ser Leu
595	600	605
Tyr Gln Pro Gln Leu	Ala Thr Arg Pro Trp Ile	Gln Asp Ile Glu Gly
610	615	620
Ala Ser Ala Lys Asp	Leu Cys Ser Ala Ser Ser	Val Val Ser Pro Ser
625	630	635
Phe Val Pro Thr Gly	Glu Lys Pro Cys Glu Gln	Val Gln Phe Gln Pro
645	650	655
Asn Thr Val Asn Thr	Leu Ala Cys Pro Leu Leu	Ser Asn Leu Ala Thr
660	665	670
Arg Leu Trp Leu Arg	Asn Gly Ala Pro Val Asn	Ala Ser Ala Ser Cys
675	680	685
His Val Leu Pro Thr	Gly Asp Leu Leu Leu Val	Gly Thr Gln Gln Leu
690	695	700
Gly Glu Phe Gln Cys	Trp Ser Leu Glu Glu Gly	Phe Gln Gln Leu Val
705	710	715
Ala Ser Tyr Cys Pro	Glu Val Val Glu Asp Gly	Val Ala Asp Gln Thr
725	730	735
Asp Thr Val Pro Thr	Pro Arg Pro Gly Ala Cys	Ile Thr Asn Ser Ala
740	745	750
Arg Glu Arg Lys Ile	Asn Ser Ser Leu Gln Leu	Pro Asp Arg Val Leu
755	760	765
Asn Phe Leu Lys Asp	His Phe Leu Met Asp Gly	Gln Val Arg Ser Arg
770	775	780
Met Leu Leu Leu Gln	Pro Gln Ala Arg Tyr Gln	Arg Val Ala Val His
785	790	795
Arg Val Pro Gly Leu	His His Thr Tyr Asp Val	Leu Phe Leu Gly Thr
805	810	815
Gly Asp Gly Arg Leu	His Lys Ala Val Ser Val	Gly Pro Arg Val His



tggcacaggg	gaactacaga	aggetctgcc	gtctgtgtct	tcacaatgaa	ggatgtgcag	1260
agagtcttca	gcggcctcta	caaggaggtg	aaccgtgaga	cacagcagtg	gtacaccgtg	1320
acccacccgg	tgcccacacc	ccggcctgga	gcgtgcatca	ccaacagtg	ccgggaaagg	1380
aagatcaact	catccctgca	gctcccagac	cgcgtgctga	acttcctcaa	ggaccacttc	1440
ctgatggacg	ggcaggtccg	aagccgcagt	ctgctgctgc	agccccaggg	tcgctaccag	1500
cgcgtggctg	tacaccgcgt	ccctggcctg	caccacacct	acgatgtcct	cttcctgggg	1560
actggtgacg	gccggctcca	caaggcagtg	agcgtggggc	cccggttgca	catcattgag	1620
gagctgcaga	tcttctcatc	gggacagccc	gtgcagaatc	tgctcctgga	caccacaggg	1680
gggctgctgt	atgcggcctc	acactcgggc	gtagtccagg	tgcccatggc	caactgcagc	1740
ctgtacagga	gctgtgggga	ctgcctcctc	gcccgggacc	cctactgtgc	ttggagcggc	1800
tccagctgca	agcacgtcag	cctctaccag	cctcagctgg	ccaccaggcc	gtggatccag	1860
gacatcgagg	gagccagcgc	caaggacctt	tgcagcgcgt	cttcggttgt	gtccccgtct	1920
tttgtacca	caggggagaa	gccatgtgag	caagtccagt	tccagcccaa	cacagtgaac	1980
actttggcct	gcccgtcctc	ctccaacctg	gcgacccgac	tctggctacg	caacggggcc	2040
cccgtaaatg	cctcggcctc	ctgccacgtg	ctacccactg	gggacctgct	gctggtgggg	2100
acccaacagc	tgggggagtt	ccagtgtctg	tcactagagg	agggcttcca	gcagctggta	2160
gccagctact	gcccagaggt	ggtggaggac	ggggtggcag	accaaacaga	tacggtgccc	2220
acaccccggc	ctggagcgtg	catcaccaac	agtgcgccgg	aaaggaagat	caactcatcc	2280
ctgcagctcc	cagaccgcgt	gctgaacttc	ctcaaggacc	acttcctgat	ggacggggcag	2340
gtccgaagcc	gcatgctgct	gctgcagccc	caggetctgt	accagcgcgt	ggctgtacac	2400
cgcgtccctg	gectgcacca	cacctacgat	gtcctcttcc	tgggcactgg	tgacggcccg	2460
ctccacaagg	cagttagcgt	gggcccccg	gtgcacatca	ttgaggagct	gcagatcttc	2520
tcacgaggac	agcccgtgca	gaatctgtct	ctggacaccc	acagggggct	gctgtatgcg	2580
gcctcacact	cgggcgtagt	ccaggtgccc	atggccaact	gcagcctgta	caggagctgt	2640
ggggactgcc	tectcgcccc	ggacccctac	tgtgcttgga	gcggctccag	ctgcaagcac	2700
gtcagcctct	accagcctca	gctggccacc	aggccgtgga	tccaggacat	cgaggggagcc	2760
agcgccaagg	acctttgcag	cgcgtcttcg	gttgtgtccc	cgtcttttgt	accaacaggg	2820
gagaagccat	gtgagcaagt	ccagttccag	cccaacacag	tgaacacttt	ggcctgcccc	2880
ctcctctcca	acctggcgac	ccgactctgg	ctacgcaacg	gggcccccg	caatgcctcg	2940
gcctctgtcc	acgtgctacc	cactggggac	ctgctgctgg	tgggcaccca	acagctgggg	3000
gagttccagt	gctggtcact	agaggagggc	ttccagcagc	tggtagccag	ctactgccc	3060
gaggtggtgg	aggacgggg	ggcaaacc	acagatgagg	gtggcagtg	acccgtcatt	3120
atcagcacat	cgcgtgtgag	tgcacccagc	acccggtg	ggcctgtccc	tggtatgcag	3180
ctactctag						3189

<210> 6  
 <211> 1062  
 <212> PRT  
 <213> homo sapiens

<400> 6

Met	Pro	Ser	Gln	Gly	Arg	Val	Glu	Ser	Cys	Ser	Cys	Arg	Ser	Gly	Gly
1				5					10					15	
Gly	Gly	Pro	Arg	Gly	Asp	Ser	Gly	Ala	Asp	Arg	Gly	Ala	Glu	Leu	Pro
			20					25					30		
Pro	Val	Ser	Pro	Ala	Glu	Pro	Pro	Glu	Pro	Glu	Pro	Arg	Asp	Thr	Val
		35					40					45			
Ala	Pro	Ala	Leu	Arg	Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp
		50				55					60				
Leu	Ala	Ala	Pro	Trp	Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu
65					70				75					80	
Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala
			85					90					95		
Leu	Ser	Pro	Arg	Ile	Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe
		100					105						110		
Leu	Arg	Phe	Glu	Ala	Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu



115	120	125
Ser Arg Asp Gly Arg Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe		
130	135	140
Ala Leu Ser Ser Asn Leu Ser Phe Leu Pro Gly Gly Glu Tyr Gln Glu		
145	150	155
Leu Leu Trp Gly Ala Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys		
165	170	175
Gly Lys Asp Pro Gln Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu		
180	185	190
Pro Leu Ser Gly Ser His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser		
195	200	205
Pro Met Cys Thr Tyr Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp		
210	215	220
Glu Lys Gly Asn Val Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe		
225	230	235
Asp Pro Asn Phe Lys Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr		
245	250	255
Thr Gly Thr Val Ser Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg		
260	265	270
Ser Gln Ser Leu Arg Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu		
275	280	285
Gln Asp Pro Ala Phe Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly		
290	295	300
Ser Leu Gln Gly Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr		
305	310	315
Gly Gln Glu Phe Glu Phe Phe Glu Asn Thr Ile Val Ser Arg Ile Ala		
325	330	335
Arg Ile Cys Lys Gly Asp Glu Gly Gly Glu Arg Val Leu Gln Gln Arg		
340	345	350
Trp Thr Ser Phe Leu Lys Ala Gln Leu Leu Cys Ser Arg Pro Asp Asp		
355	360	365
Gly Phe Pro Phe Asn Val Leu Gln Asp Val Phe Thr Leu Ser Pro Ser		
370	375	380
Pro Gln Asp Trp Arg Asp Thr Leu Phe Tyr Gly Val Phe Thr Ser Gln		
385	390	395
Trp His Arg Gly Thr Thr Glu Gly Ser Ala Val Cys Val Phe Thr Met		
405	410	415
Lys Asp Val Gln Arg Val Phe Ser Gly Leu Tyr Lys Glu Val Asn Arg		
420	425	430
Glu Thr Gln Gln Trp Tyr Thr Val Thr His Pro Val Pro Thr Pro Arg		
435	440	445
Pro Gly Ala Cys Ile Thr Asn Ser Ala Arg Glu Arg Lys Ile Asn Ser		
450	455	460
Ser Leu Gln Leu Pro Asp Arg Val Leu Asn Phe Leu Lys Asp His Phe		
465	470	475
Leu Met Asp Gly Gln Val Arg Ser Arg Met Leu Leu Leu Gln Pro Gln		
485	490	495
Ala Arg Tyr Gln Arg Val Ala Val His Arg Val Pro Gly Leu His His		
500	505	510
Thr Tyr Asp Val Leu Phe Leu Gly Thr Gly Asp Gly Arg Leu His Lys		
515	520	525
Ala Val Ser Val Gly Pro Arg Val His Ile Ile Glu Glu Leu Gln Ile		
530	535	540
Phe Ser Ser Gly Gln Pro Val Gln Asn Leu Leu Asp Thr His Arg		
545	550	555
Gly Leu Leu Tyr Ala Ala Ser His Ser Gly Val Val Gln Val Pro Met		
		560

														565															570															575
Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg																													
														580															585															590
Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu																													
														595															600															605
Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly																													
														610															615															620
Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser																													
														625															630															635
Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro																													
														645															650															655
Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr																													
														660															665															670
Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys																													
														675															680															685
His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu																													
														690															695															700
Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val																													
														705															710															715
Ala	Ser	Tyr	Cys	Pro	Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr																													
														725															730															735
Asp	Thr	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala																													
														740															745															750
Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu																													
														755															760															765
Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg																													
														770															775															780
Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His																													
														785															790															795
Arg	Val	Pro	Gly	Leu	His	His	Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr																													
														805															810															815
Gly	Asp	Gly	Arg	Leu	His	Lys	Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His																													
														820															825															830
Ile	Ile	Glu	Glu	Leu	Gln	Ile	Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn																													
														835															840															845
Leu	Leu	Leu	Asp	Thr	His	Arg	Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser																													
														850															855															860
Gly	Val	Val	Gln	Val	Pro	Met	Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys																													
														865															870															875
Gly	Asp	Cys	Leu	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser																													
														885															890															895
Ser	Cys	Lys	His	Val	Ser	Leu	Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro																													
														900															905															910
Trp	Ile	Gln	Asp	Ile	Glu	Gly	Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala																													
														915															920															925
Ser	Ser	Val	Val	Ser	Pro	Ser	Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys																													
														930															935															940
Glu	Gln	Val	Gln	Phe	Gln	Pro	Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro																													
														945															950															955
Leu	Leu	Ser	Asn	Leu	Ala	Thr	Arg	Leu	Trp	Leu	Arg	Asn	Gly																															

1010 1015 1020  
 Asp Gly Val Ala Asn Gln Thr Asp Glu Gly Gly Ser Val Pro Val Ile  
 1025 1030 1035 1040  
 Ile Ser Thr Ser Arg Val Ser Ala Pro Ser Thr Arg Leu Gly Pro Val  
 1045 1050 1055  
 Pro Gly Cys Arg Leu Leu  
 1060

<210> 7  
 <211> 2517  
 <212> DNA  
 <213> homo sapiens

<400> 7  
 atgcccagcc agggcagggt ggagagctgc agctgcagggt ccggaggcgg gggcccccg 60  
 ggcgactcgg gggcgaccg cggggcggag ctgccgcccg tgagtcggcg cgagccacct 120  
 gagccccgagc cgcgggacac cgctcgctcct gctctccgaa tgctgcgcac cgcgatgggc 180  
 ctgaggagct ggctcgccgc cccatggggc gcgctgccgc ctcggccacc gctgctgctg 240  
 ctctgctgc tgctgctcct gctgcagccg ccgcctccga cctgggcgct cagcccccg 300  
 atcagcctgc ctctgggctc tgaagagcgg ccattcctca gattcgaagc tgaacacatc 360  
 tccaactaca cagcccttct gctgagcagg gatggcagga ccctgtacgt ggggtgctcga 420  
 gaggccctct ttgcactcag tagcaacctc agcttcctgc caggcgggga gtaccaggag 480  
 ctgctttggg gtgcagacgc agagaagaaa cagcagtgc gttcaaggg caaggacca 540  
 cagcgcgact gtcaaaacta catcaagatc ctctgcccgc tcagcggcag tcacctgttc 600  
 acctgtggca cagcagcctt cagcccatg tgtacctaca tcaacatgga gaacttcacc 660  
 ctggcaaggg acgagaaggg gaatgtcctc ctggaagatg gcaagggccg ttgtcccttc 720  
 gaccgaatt tcaagtccac tgccctgggtg gttgatggcg agctctacac tggaacagtc 780  
 agcagcttcc aagggaatga cccggccatc tcgcggagcc aaagccttcg cccaccaag 840  
 accgagagct ccctcaactg gctgcaagac ccagcttttg tggcctcagc ctacattcct 900  
 gagagcctgg gcagcttgca aggcgatgat gacaagatct actttttctt cagcgagact 960  
 ggccaggaat ttgagttctt tgagaacacc atttgttccc gcattgcccg catctgcaag 1020  
 ggcgatgagg gtggagagcg ggtgctacag cagcgtgga cctccttctt caaggcccag 1080  
 ctgctgtgct cagggcccga cgatggcttc cccttcaacg tgctgcagga tgtcttcacg 1140  
 ctgagcccca gccccagga ctggcgtgac acccttttct atgggggtctt cacttcccag 1200  
 tggcacaggg gaactacaga aggtcttgc gtctgtgtct tcacaatgaa ggatgtgcag 1260  
 agagtcttca gcggcctcta caaggagggtg aaccgtgaga cacagcagtg gtacaccgtg 1320  
 acccaccccg tgcccacacc cgggcctgga gcgtgcatca ccaacagtg cgggaaagg 1380  
 aagatcaact catccctgca gctcccagac cgcgtgctga acttctctaa ggaccattc 1440  
 ctgatggacg ggcagggtccg aagccgcagtg ctgctgctgc agccccaggc tcgtaccag 1500  
 cgcgtggctg tacaccgcgt ccttggcctg caccacactc acgatgtcct cttcctggg 1560  
 actggtgacg gccggctcca caaggcagtg agcgtgggcc cccgggtgca catcattgag 1620  
 gagctgcaga tcttctcatc gggacagccc gtgcagaatc tgctcctgga caccacagg 1680  
 gggctgctgt atgcgccctc acactcgggc gtagtccagg tgcccatggc caactgcagc 1740  
 ctgtacagga gctgtgggga ctgcctctc gcccgggacc cctactgtgc ttggagcggc 1800  
 tccagctgca agcacgtcag cctctaccag cctcagctgg ccaccaggcc gtggatccag 1860  
 gacatcgagg gagccagcgc caaggacctt tgcagcgcgt cttcggttgt gtccccgtct 1920  
 tttgtaccaa caggggagaa gccatgtgag caagtccagt tccagcccaa cacagtgaac 1980  
 actttggcct gccgctcct ctccaacctg gcgaccgcac tctggctacg caacggggcc 2040  
 cccgtcaatg cctcgccctc ctgccacgtg ctaccactg gggacctgct gctgggtggc 2100  
 acccaacagc tgggggagtt ccagtgtggt tccactagagg agggcttcca gcagctggta 2160  
 gccagctact gccagaggt ggtggaggac ggggtggcag accaaacaga tgagggtggc 2220  
 agtgtacccg tcattatcag cacatcgctg gtgagtgcac cagctggtgg caaggccagc 2280  
 tggggtgcag acaggtccta ctggaaggag ttctgtgtga tgtgcacgct ctttgtgctg 2340  
 gccgtgctgc tcccagtttt attcttgcct taccggcacc ggaacagcat gaaagtcttc 2400  
 ctgaagcagg gggaatgtgc cagcgtgcac cccaagacct gccctgtggt gctgccccct 2460  
 gagaccgcgc ctcggtttca ccgtcacgc cgacgtcgag gtgactcaac ggcctag 2517

Figure 1 consists of 12 sub-graphs, labeled (a) through (l), each showing the effect of a different chemical treatment on the growth of *E. coli* O157:H7. The y-axis for all graphs is  $\log_{10}$  CFU/g, ranging from 0 to 8. The x-axis for all graphs is time in hours (h), ranging from 0 to 24. Each graph includes a control line (open circles) and a treatment line (filled circles). The treatments are: (a) 0.1% NaOCl, (b) 0.2% NaOCl, (c) 0.5% NaOCl, (d) 1.0% NaOCl, (e) 0.1% NaOCl + 0.1% NaOH, (f) 0.2% NaOCl + 0.1% NaOH, (g) 0.5% NaOCl + 0.1% NaOH, (h) 1.0% NaOCl + 0.1% NaOH, (i) 0.1% NaOCl + 0.1% NaOH + 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>, (j) 0.2% NaOCl + 0.1% NaOH + 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>, (k) 0.5% NaOCl + 0.1% NaOH + 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>, and (l) 1.0% NaOCl + 0.1% NaOH + 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>. The graphs show that higher concentrations of NaOCl and the addition of NaOH and Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub> lead to faster and more complete inactivation of the bacteria.

Met	Pro	Ser	Gln	Gly	Arg	Val	Glu	Ser	Cys	Ser	Cys	Arg	Ser	Gly	Gly
1				5					10					15	
Gly	Gly	Pro	Arg	Gly	Asp	Ser	Gly	Ala	Asp	Arg	Gly	Ala	Glu	Leu	Pro
			20					25					30		
Pro	Val	Ser	Pro	Ala	Glu	Pro	Pro	Glu	Pro	Glu	Pro	Arg	Asp	Thr	Val
		35				40						45			
Ala	Pro	Ala	Leu	Arg	Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp
	50					55					60				
Leu	Ala	Ala	Pro	Trp	Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu
65					70					75					80
Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala
				85					90					95	
Leu	Ser	Pro	Arg	Ile	Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe
			100					105					110		
Leu	Arg	Phe	Glu	Ala	Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu
		115					120					125			
Ser	Arg	Asp	Gly	Arg	Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe
	130					135					140				
Ala	Leu	Ser	Ser	Asn	Leu	Ser	Phe	Leu	Pro	Gly	Gly	Glu	Tyr	Gln	Glu
145				150						155					160
Leu	Leu	Trp	Gly	Ala	Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys
			165						170					175	
Gly	Lys	Asp	Pro	Gln	Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu
			180					185					190		
Pro	Leu	Ser	Gly	Ser	His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser
		195				200						205			
Pro	Met	Cys	Thr	Tyr	Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp
	210				215						220				
Glu	Lys	Gly	Asn	Val	Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe
225				230						235					240
Asp	Pro	Asn	Phe	Lys	Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr
			245						250					255	
Thr	Gly	Thr	Val	Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg	
			260				265						270		
Ser	Gln	Ser	Leu	Arg	Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu
		275					280					285			
Gln	Asp	Pro	Ala	Phe	Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly
	290					295					300				
Ser	Leu	Gln	Gly	Asp	Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr
305				310						315					320
Gly	Gln	Glu	Phe	Glu	Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala
			325						330					335	
Arg	Ile	Cys	Lys	Gly	Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg
			340				345						350		
Trp	Thr	Ser	Phe	Leu											

Trp His Arg Gly Thr Thr Glu Gly Ser Ala Val Cys Val Phe Thr Met  
 405 410 415  
 Lys Asp Val Gln Arg Val Phe Ser Gly Leu Tyr Lys Glu Val Asn Arg  
 420 425 430  
 Glu Thr Gln Gln Trp Tyr Thr Val Thr His Pro Val Pro Thr Pro Arg  
 435 440 445  
 Pro Gly Ala Cys Ile Thr Asn Ser Ala Arg Glu Arg Lys Ile Asn Ser  
 450 455 460  
 Ser Leu Gln Leu Pro Asp Arg Val Leu Asn Phe Leu Lys Asp His Phe  
 465 470 475 480  
 Leu Met Asp Gly Gln Val Arg Ser Arg Met Leu Leu Leu Gln Pro Gln  
 485 490 495  
 Ala Arg Tyr Gln Arg Val Ala Val His Arg Val Pro Gly Leu His His  
 500 505 510  
 Thr Tyr Asp Val Leu Phe Leu Gly Thr Gly Asp Gly Arg Leu His Lys  
 515 520 525  
 Ala Val Ser Val Gly Pro Arg Val His Ile Ile Glu Leu Gln Ile  
 530 535 540  
 Phe Ser Ser Gly Gln Pro Val Gln Asn Leu Leu Leu Asp Thr His Arg  
 545 550 555 560  
 Gly Leu Leu Tyr Ala Ala Ser His Ser Gly Val Val Gln Val Pro Met  
 565 570 575  
 Ala Asn Cys Ser Leu Tyr Arg Ser Cys Gly Asp Cys Leu Leu Ala Arg  
 580 585 590  
 Asp Pro Tyr Cys Ala Trp Ser Gly Ser Ser Cys Lys His Val Ser Leu  
 595 600 605  
 Tyr Gln Pro Gln Leu Ala Thr Arg Pro Trp Ile Gln Asp Ile Glu Gly  
 610 615 620  
 Ala Ser Ala Lys Asp Leu Cys Ser Ala Ser Ser Val Val Ser Pro Ser  
 625 630 635 640  
 Phe Val Pro Thr Gly Glu Lys Pro Cys Glu Gln Val Gln Phe Gln Pro  
 645 650 655  
 Asn Thr Val Asn Thr Leu Ala Cys Pro Leu Leu Ser Asn Leu Ala Thr  
 660 665 670  
 Arg Leu Trp Leu Arg Asn Gly Ala Pro Val Asn Ala Ser Ala Ser Cys  
 675 680 685  
 His Val Leu Pro Thr Gly Asp Leu Leu Leu Val Gly Thr Gln Gln Leu  
 690 695 700  
 Gly Glu Phe Gln Cys Trp Ser Leu Glu Glu Gly Phe Gln Gln Leu Val  
 705 710 715 720  
 Ala Ser Tyr Cys Pro Glu Val Val Glu Asp Gly Val Ala Asp Gln Thr  
 725 730 735  
 Asp Glu Gly Gly Ser Val Pro Val Ile Ile Ser Thr Ser Arg Val Ser  
 740 745 750  
 Ala Pro Ala Gly Gly Lys Ala Ser Trp Gly Ala Asp Arg Ser Tyr Trp  
 755 760 765  
 Lys Glu Phe Leu Val Met Cys Thr Leu Phe Val Leu Ala Val Leu Leu  
 770 775 780  
 Pro Val Leu Phe Leu Leu Tyr Arg His Arg Asn Ser Met Lys Val Phe  
 785 790 795 800  
 Leu Lys Gln Gly Glu Cys Ala Ser Val His Pro Lys Thr Cys Pro Val  
 805 810 815  
 Val Leu Pro Pro Glu Thr Arg Pro Arg Phe His Arg His Arg Arg Arg  
 820 825 830  
 Arg Gly Asp Ser Thr Ala  
 835

<210> 9  
 <211> 3453  
 <212> DNA  
 <213> homo sapiens

<400> 9  
 atgccagcc agggcagggg ggagagctgc agctgcaggt ccggaggcgg gggcccccg 60  
 ggcgactcgg gggcgaccg cggggcggag ctgccgccg tgagtccggc cgagccacct 120  
 gagcccagac cgcgggacac cgctcctcct gctctccgaa tgctgcgcac cgcgatgggc 180  
 ctgaggagct ggctcgcgc cccatggggc gcgctgcgc ctcggccacc gctgctgctg 240  
 ctctgctgc tgctgctcct gctgcagcgc cgcctccga cctgggcgct cagcccccg 300  
 atcagcctgc ctctgggctc tgaagagcgg ccattcctca gattcgaagc tgaacacatc 360  
 tccaactaca cagcccttct gctgagcagg gatggcagga cctgtacgt ggggtgctcg 420  
 gagccctct ttgactcag tagcaacctc agcttctgc caggcgggga gtaccaggag 480  
 ctgctttggg gtgcagacgc agagaagaaa cagcagtgc gcttcaagg caaggaccca 540  
 cagcgcgact gtcaaaacta catcaagatc ctctgcccgc tcagcggcag tcacctgttc 600  
 acctgtggca cagcagcctt cagccccatg tgtacctaca tcaacatgga gaacttcacc 660  
 ctggcaaggg acgagaaggg gaatgtcctc ctggaagatg gcaagggccg ttgtcccttc 720  
 gacccgaatt tcaagtccac tgccctgggtg gttgatggcg agctctacac tggaaacagtc 780  
 agcagcttcc aagggaatga cccggccatc tcgcggagcc aaagccttcg ccccaccaag 840  
 accgagagct cctcaactg gctgcaagac ccagcttttg tggcctcagc ctacattcct 900  
 gagagcctgg gcagcttgca agcgatgat gacaagatc actttttctt cagcgagact 960  
 ggcaggaat ttgagttctt tgagaacacc attgtgtccc gcattgcccg catctgcaag 1020  
 ggcgatgagg gtggagagcg ggtgctacag cagcgtgga cctccttctt caaggcccag 1080  
 ctgctgtgct caccggcccga ccatggcttc cccttcaacg tgctgcagga tgtcttcacg 1140  
 ctgagcccca gccccagga ctggcgtgac acccttttct atgggggtctt cacttcccag 1200  
 tggcacaggg gaactacaga aggtctgctc gtctgtgtct tcacaatgaa ggatgtgcag 1260  
 agagtcttca ggggcctcta caaggagggtg aaccgtgaga cacagcagtg gtacaccgtg 1320  
 acccaccggg tgccacacc cggcctgga gcgtgcatca ccaacagtg cgggaaagg 1380  
 aagatcaact catcctgca gctcccagac cgcgtgctga acttctcaa ggaccacttc 1440  
 ctgatggacg ggcaggtccg aagccgcag ctgctgctgc agccccaggc tcgctaccag 1500  
 cgcgtggctg tacaccgct cctggcctg caccacacct acgatgtcct ctctctgggc 1560  
 actggtgacg gccggctcca caaggcagtg agcgtgggc cccgggtgca catcattgag 1620  
 gagctgcaga tcttctcctc gggacagccc gtgcagaatc tgctcctgga caccacagg 1680  
 gggctgctgt atgggcctc acactcgggc gtagtccagg tgcccatggc caactgcagc 1740  
 ctgtacagga gctgtgggga ctgcctcctc gcccgggacc cctactgtgc ttggagcggc 1800  
 tccagctgca agcagctcag cctctaccag cctcagctgg ccaccaggcc gtggatccag 1860  
 gacatcgagg cagcagcgc caaggacctt tgcagcgcgt cttcggttgt gtccccgtct 1920  
 tttgtaccaa gagggagaa gccatgtgag caagtccagt tccagcccaa cacagtgaac 1980  
 actttggcct gccgcctcct ctccaacctg gcgaccgcac tctggctacg caacggggcc 2040  
 cccgtcaatg cctcggcctc ctgccacgtg ctaccactg gggacctgct gctggtgggc 2100  
 acccaacagc tgggggagtt ccagtgtggt tctactagagg agggcttcca gcagctggtg 2160  
 gccagctact gccagaggt ggtggaggac ggggtggcag accaaacaga tacggtgcc 2220  
 acacccggc ctggagcgtg catcaccaac agtgcccggg aaaggaagat caactcatcc 2280  
 ctgcagctcc cagaccgcgt gctgaacttc ctcaaggacc acttctgat ggacgggcag 2340  
 gtccgaagcc gcatgtgct gctgcagccc caggctcgt accagcgcgt ggctgtacac 2400  
 cgcgtccctg gcctgcacca cacctacgat gtctcttcc tgggcactgg tgacggccgg 2460  
 ctccacaagg cagtgcagct gggcccccg gtgcacatca ttgaggagct gcagatcttc 2520  
 tcatcgggac agcccggtgca gaactgtctc ctggacaccc acaggggggt gctgtatgct 2580  
 gcctcacact cgggcgtagt ccagggtccc atggccaact gcagcctgta caggagctgt 2640  
 ggggactgcc tctcgcgcc ggaccctac tgtgcttggg gcggctccag ctgcaagcac 2700  
 gtcagcctct accagcctca gctggccacc aggccttggg tccaggacat cgaggggacc 2760  
 agcgccaagg acccttgcag cgcgtcttcg gttgtgtccc cgtcttttgt accaacaggg 2820  
 gagaagccat gtgagcaagt ccagttccag cccaacacag tgaacacttt ggctgccc 2880  
 ctctctcca acctggcgac ccgactctgg ctacgcaacg gggccccgt caatgcctcg 2940  
 gcctcctgcc acgtgtacc cactggggac ctgctgctgg tgggcacca acagctgggg 3000

gagttccagt gctggtcact agaggagggc ttccagcagc tggtagccag ctactgcca 3060  
 gaggtggtgg aggacggggg ggcaaacc aaacagatgagg gtggcagtgt acccgtcatt 3120  
 atcagcacat cgcgtgtgag tgcaccagct ggtggcaagg ccagctgggg tgcagacagg 3180  
 tcctactgga aggagttcct ggtgatgtgc acgctctttg tgctggccgt gctgctccca 3240  
 gttttattct tgctctaccg gcaccggaac agcatgaaag tcttcctgaa gcagggggaa 3300  
 tgtgccagcg tgcaccccaa gacctgccct gtggtgctgc cccctgagac ccgccctcgg 3360  
 tttcaccgtc accgccgacg tcgaggtgcc cgaaggaccg cgcacctggt gcatgaccgg 3420  
 caagcccggg gcctgaagcg gatccagaca tga 3453

<210> 10  
 <211> 1150  
 <212> PRT  
 <213> homo sapiens

<400> 10  
 Met Pro Ser Gln Gly Arg Val Glu Ser Cys Ser Cys Arg Ser Gly Gly  
 1 5 10 15  
 Gly Gly Pro Arg Gly Asp Ser Gly Ala Asp Arg Gly Ala Glu Leu Pro  
 20 25 30  
 Pro Val Ser Pro Ala Glu Pro Pro Glu Pro Glu Pro Arg Asp Thr Val  
 35 40 45  
 Ala Pro Ala Leu Arg Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp  
 50 55 60  
 Leu Ala Ala Pro Trp Gly Ala Leu Pro Pro Arg Pro Pro Leu Leu Leu  
 65 70 75 80  
 Leu Leu Leu Leu Leu Leu Leu Leu Gln Pro Pro Pro Pro Thr Trp Ala  
 85 90 95  
 Leu Ser Pro Arg Ile Ser Leu Pro Leu Gly Ser Glu Glu Arg Pro Phe  
 100 105 110  
 Leu Arg Phe Glu Ala Glu His Ile Ser Asn Tyr Thr Ala Leu Leu Leu  
 115 120 125  
 Ser Arg Asp Gly Arg Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe  
 130 135 140  
 Ala Leu Ser Ser Asn Leu Ser Phe Leu Pro Gly Gly Glu Tyr Gln Glu  
 145 150 155 160  
 Leu Leu Trp Gly Ala Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys  
 165 170 175  
 Gly Lys Asp Pro Gln Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu  
 180 185 190  
 Pro Leu Ser Gly Ser His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser  
 195 200 205  
 Pro Met Cys Thr Tyr Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp  
 210 215 220  
 Glu Lys Gly Asn Val Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe  
 225 230 235 240  
 Asp Pro Asn Phe Lys Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr  
 245 250 255  
 Thr Gly Thr Val Ser Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg  
 260 265 270  
 Ser Gln Ser Leu Arg Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu  
 275 280 285  
 Gln Asp Pro Ala Phe Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly  
 290 295 300  
 Ser Leu Gln Gly Asp Asp Lys Ile Tyr Phe Phe Ser Glu Thr  
 305 310 315 320  
 Gly Gln Glu Phe Glu Phe Phe Glu Asn Thr Ile Val Ser Arg Ile Ala

										325						330						335		
Arg	Ile	Cys	Lys	Gly	Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg									
			340						345			350												
Trp	Thr	Ser	Phe	Leu	Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp									
			355						360			365												
Gly	Phe	Pro	Phe	Asn	Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser									
			370						375			380												
Pro	Gln	Asp	Trp	Arg	Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln									
385					390			395			400													
Trp	His	Arg	Gly	Thr	Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met									
			405						410			415												
Lys	Asp	Val	Gln	Arg	Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg									
			420						425			430												
Glu	Thr	Gln	Gln	Trp	Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg									
			435						440			445												
Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser									
			450						455			460												
Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe									
465					470			475			480													
Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln									
			485						490			495												
Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His									
			500						505			510												
Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys									
			515						520			525												
Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile									
			530						535			540												
Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg									
545					550			555			560													
Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met									
			565						570			575												
Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg									
			580						585			590												
Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu									
			595						600			605												
Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly									
			610						615			620												
Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser									
625					630			635			640													
Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro									
			645						650			655												
Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr									
			660						665			670												
Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys									
			675						680			685												
His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu									
			690						695			700												
Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val									
705					710																			



```

      770              775              780
Met Leu Leu Leu Gln Pro Gln Ala Arg Tyr Gln Arg Val Ala Val His
785              790              795              800
Arg Val Pro Gly Leu His His Thr Tyr Asp Val Leu Phe Leu Gly Thr
      805              810              815
Gly Asp Gly Arg Leu His Lys Ala Val Ser Val Gly Pro Arg Val His
      820              825              830
Ile Ile Glu Glu Leu Gln Ile Phe Ser Ser Gly Gln Pro Val Gln Asn
      835              840              845
Leu Leu Leu Asp Thr His Arg Gly Leu Leu Tyr Ala Ala Ser His Ser
      850              855              860
Gly Val Val Gln Val Pro Met Ala Asn Cys Ser Leu Tyr Arg Ser Cys
865              870              875              880
Gly Asp Cys Leu Leu Ala Arg Asp Pro Tyr Cys Ala Trp Ser Gly Ser
      885              890              895
Ser Cys Lys His Val Ser Leu Tyr Gln Pro Gln Leu Ala Thr Arg Pro
      900              905              910
Trp Ile Gln Asp Ile Glu Gly Ala Ser Ala Lys Asp Leu Cys Ser Ala
      915              920              925
Ser Ser Val Val Ser Pro Ser Phe Val Pro Thr Gly Glu Lys Pro Cys
      930              935              940
Glu Gln Val Gln Phe Gln Pro Asn Thr Val Asn Thr Leu Ala Cys Pro
      945              950              955              960
Leu Leu Ser Asn Leu Ala Thr Arg Leu Trp Leu Arg Asn Gly Ala Pro
      965              970              975
Val Asn Ala Ser Ala Ser Cys His Val Leu Pro Thr Gly Asp Leu Leu
      980              985              990
Leu Val Gly Thr Gln Gln Leu Gly Glu Phe Gln Cys Trp Ser Leu Glu
      995              1000              1005
Glu Gly Phe Gln Gln Leu Val Ala Ser Tyr Cys Pro Glu Val Val Glu
      1010              1015              1020
Asp Gly Val Ala Asn Gln Thr Asp Glu Gly Gly Ser Val Pro Val Ile
      1025              1030              1035              1040
Ile Ser Thr Ser Arg Val Ser Ala Pro Ala Gly Gly Lys Ala Ser Trp
      1045              1050              1055
Gly Ala Asp Arg Ser Tyr Trp Lys Glu Phe Leu Val Met Cys Thr Leu
      1060              1065              1070
Phe Val Leu Ala Val Leu Leu Pro Val Leu Phe Leu Leu Tyr Arg His
      1075              1080              1085
Arg Asn Ser Met Lys Val Phe Leu Lys Gln Gly Glu Cys Ala Ser Val
      1090              1095              1100
His Pro Lys Thr Cys Pro Val Val Leu Pro Pro Glu Thr Arg Pro Arg
      1105              1110              1115              1120
Phe His Arg His Arg Arg Arg Arg Gly Ala Arg Arg Thr Ala His Leu
      1125              1130              1135
Val His Asp Pro Gln Ala Arg Cys Leu Lys Arg Ile Gln Thr
      1140              1145              1150

```

<210> 11

<211> 2592

<212> DNA

<213> homo sapiens

<400> 11

```

atgccagcc agggcagggt ggagagctgc agctgcaggt ccggaggcgg gggccccgg
ggcgactcgg gggcgaccg cggggcgag ctgccgccg tgagtccggc cgagccacct

```

60  
120

```

gagccccgagc cgcggggacac cgctcgctcct gctctccgaa tgctgcgac cgcgatgggc 180
ctgaggagct ggctcgccgc cccatggggc gcgctgccgc ctgggccacc gctgctgctg 240
ctcctgctgc tgctgctcct gctgcagccg ccgctccga cctgggcgct cagcccccg 300
atcagcctgc ctctgggctc tgaagagcgg ccattcctca gattcgaagc tgaacacatc 360
tccaactaca cagcccttct gctgagcagg gatggcagga ccctgtacgt ggggtgctcga 420
gaggccctct ttgcaactcag tagcaacctc agcttcctgc caggcgggga gtaccaggag 480
ctgctttggg gtgcagacgc agagaagaaa cagcagtgc gcttcaagg caaggaccca 540
cagcgcgact gtcaaaacta catcaagatc ctctgccgc tcagcggcag tcacctgttc 600
acctgtggca cagcagcctt cagcccatg tgtacctaca tcaacatgga gaacttcacc 660
ctggcaaggg acgagaaggg gaatgtcctc ctggaagatg gcaagggccg ttgtcccttc 720
gaccgaatt tcaagtccac tgccctggtg gttgatggcg agctctacac tggaacagtc 780
agcagcttcc aagggaatga cccggccatc tcgcgagcc aaagccttcg cccaccaag 840
accgagagct cctcaactg gctgcaagac ccagcttttg tggcctcagc ctacattoct 900
gagagcctgg gcagcttgca aggcgatgat gacaagatct acttttctt cagcgagact 960
ggccaggaat ttgagttctt tgagaacacc attgtgtccc gcattgcccg catctgcaag 1020
ggcgatgagg gtggagagcg ggtgctacag cagcgctgga cctccttctt caaggccag 1080
ctgctgtgct cagggccga cgatggcttc cccttcaacg tgctgcagga tgtcttcacg 1140
ctgagcccca gccccagga ctggcgtgac acccttttct atggggctct cacttccag 1200
tgccacaggg gaactacaga aggtctgcc gtctgtgtct tcacaatgaa ggatgtgcag 1260
agagtcttca gcggcctcta caaggagggtg aaccgtgaga cacagcagtg gtacaccgtg 1320
accaccccg tgccacacc ccggcctgga gcgtgcatca ccaacagtgc ccgggaaagg 1380
aagatcaact catccctgca gctcccagac cgcgtgctga acttctcaa ggaccattc 1440
ctgatggacg ggcaggctcg aagccgcag ctgctgctgc agccccaggc tcgctaccag 1500
cgctggctg tacaccgcgt ccctggcctg caccacacct acgatgtcct cttcctgggc 1560
actggtgacg gccggctcca caaggcagt agcgtgggccc cccgggtgca catcattgag 1620
gagctgcaga tcttctcacc gggacagccc gtgcagaatc tgctcctgga caccacagg 1680
gggctgctgt atcggcctc acactcgggc gtagtccagg tgcccatggc caactgcagc 1740
ctgtacagga gctgtgggga ctgctcctc gcccgggacc cctactgtgc ttggagcggc 1800
tccagctgca agcacgtcag cctctaccag cctcagctgg ccaccaggcc gtggatccag 1860
gacatcgagg gagccagcgc caaggacctt tgcagcgcgt cttcggttgt gtccccgtct 1920
tttgtaccaa caggggagaa gccatgtgag caagtccagt tccagcccaa cacagtgaac 1980
actttggcct gccgcctcct ctccaacctg gcgacccgac tctggctacg caacggggcc 2040
cccgctcaatg cctcggcctc ctgccacgtg ctaccactg gggacctgct gctgggtggc 2100
acccaacagc tgggggagtt ccagtgtggt tccactagagg agggcttcca gcagctggtg 2160
gccagctact gccagaggt ggtggaggag ggggtggcag accaaacaga tgagggtggc 2220
agtgtacccg tcattatcag cacatcgctg gtgagtgcac cagctggtgg caaggccagc 2280
tggggtgcag acaggtccta ctggaaggag ttctgtgtga tgtgcacgct ctttgtgctg 2340
gccgtgctgc tcccagtttt attcttgcct taccggcacc ggaacagcat gaaagtcttc 2400
ctgaagcagg gggaaatgtgc cagcgtgcac cccaagacct gccctgtggt gctgccccct 2460
gagacccgcc cactcaacgg cctaggcccc cctagcacc cgctcgatca ccgagggtac 2520
cagtccccc gaaggaccgc gcacctggtg catgaccgc aagccgggtg cctgaagcgg 2580
atccagacat ga 2592

```

<210> 12

<211> 863

<212> PRT

<213> homo sapiens

<400> 12

```

Met Pro Ser Gln Gly Arg Val Glu Ser Cys Ser Cys Arg Ser Gly Gly
  1             5             10             15
Gly Gly Pro Arg Gly Asp Ser Gly Ala Asp Arg Gly Ala Glu Leu Pro
      20             25             30
Pro Val Ser Pro Ala Glu Pro Pro Glu Pro Glu Pro Arg Asp Thr Val
      35             40             45
Ala Pro Ala Leu Arg Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp

```

	50				55				60						
Leu 65	Ala	Ala	Pro	Trp	Gly 70	Ala	Leu	Pro	Pro	Arg 75	Pro	Pro	Leu	Leu	Leu
Leu	Leu	Leu	Leu	Leu 85	Leu	Leu	Leu	Gln	Pro	Pro 90	Pro	Pro	Thr	Trp	Ala
Leu	Ser	Pro	Arg 100	Ile	Ser	Leu	Pro	Leu	Gly	Ser 105	Glu	Glu	Arg	Pro	Phe
Leu	Arg	Phe 115	Glu	Ala	Glu	His	Ile	Ser	Asn	Tyr 120	Thr	Ala	Leu	Leu	Leu
Ser	Arg	Asp 130	Gly	Arg	Thr	Leu	Tyr	Val	Gly	Ala 140	Arg	Glu	Ala	Leu	Phe
Ala 145	Leu	Ser	Ser	Asn 150	Leu	Ser	Phe	Leu	Pro	Gly 155	Gly	Glu	Tyr	Gln	Glu
Leu	Leu	Trp	Gly 165	Ala	Asp	Ala	Glu	Lys	Lys	Gln 170	Gln	Cys	Ser	Phe	Lys
Gly	Lys	Asp 180	Pro	Gln	Arg	Asp	Cys	Gln	Asn	Tyr 185	Ile	Lys	Ile	Leu	Leu
Pro	Leu	Ser 195	Gly	Ser	His	Leu	Phe	Thr	Cys	Gly 200	Thr	Ala	Ala	Phe	Ser
Pro	Met	Cys 210	Thr	Tyr	Ile	Asn	Met	Glu	Asn	Phe 220	Thr	Leu	Ala	Arg	Asp
Glu 225	Lys	Gly	Asn	Val 230	Leu	Leu	Glu	Asp	Gly	Lys 235	Gly	Arg	Cys	Pro	Phe
Asp	Pro	Asn	Phe 245	Lys	Ser	Thr	Ala	Leu	Val	Val 250	Asp	Gly	Glu	Leu	Tyr
Thr	Gly	Thr 260	Val	Ser	Ser	Phe	Gln	Gly	Asn	Asp 265	Pro	Ala	Ile	Ser	Arg
Ser	Gln	Ser 275	Leu	Arg	Pro	Thr	Lys	Thr	Glu	Ser 280	Ser	Leu	Asn	Trp	Leu
Gln	Asp	Pro 290	Ala	Phe	Val	Ala	Ser	Ala	Tyr	Ile 300	Pro	Glu	Ser	Leu	Gly
Ser 305	Leu	Gln	Gly	Asp 310	Asp	Asp	Lys	Ile	Tyr	Phe 315	Phe	Phe	Ser	Glu	Thr
Gly	Gln	Glu	Phe 325	Glu	Phe	Phe	Glu	Asn	Thr	Ile 330	Val	Ser	Arg	Ile	Ala
Arg	Ile	Cys 340	Lys	Gly	Asp	Glu	Gly	Gly	Glu	Arg 345	Val	Leu	Gln	Gln	Arg
Trp	Thr	Ser 355	Phe	Leu	Lys	Ala	Gln	Leu	Leu	Cys 360	Ser	Arg	Pro	Asp	Asp
Gly	Phe	Pro 370	Phe	Asn	Val	Leu	Gln	Asp	Val	Phe 380	Thr	Leu	Ser	Pro	Ser
Pro 385	Gln	Asp	Trp	Arg 390	Asp	Thr	Leu	Phe	Tyr	Gly 395	Val	Phe	Thr	Ser	Gln
Trp	His	Arg	Gly 405	Thr	Thr	Glu	Gly	Ser	Ala	Val 410	Cys	Val	Phe	Thr	Met
Lys	Asp	Val 420	Gln	Arg	Val	Phe	Ser	Gly	Leu	Tyr 425	Lys	Glu	Val	Asn	Arg
Glu	Thr	Gln 435	Gln	Trp	Tyr	Thr	Val	Thr	His	Pro 440	Val	Pro	Thr	Pro	Arg
Pro	Gly	Ala 450	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu 460	Arg	Lys	Ile	Asn	Ser
Ser 465	Leu	Gln	Leu	Pro 470	Asp	Arg	Val	Leu	Asn	Phe 475	Leu	Lys	Asp	His	Phe
Leu	Met	Asp	Gly 485	Gln	Val	Arg	Ser	Arg	Met	Leu 490	Leu	Leu	Gln	Pro	Gln
Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val 495	Pro	Gly	Leu	His	His

				500						505				510		
Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys	
		515					520					525				
Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile	
	530					535					540					
Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg	
545					550					555					560	
Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	
				565					570					575		
Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg	
			580					585					590			
Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	
		595					600					605				
Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	
	610					615					620					
Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	
625					630						635				640	
Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro	
				645					650					655		
Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr	
			660					665					670			
Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys	
		675				680						685				
His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu	
	690					695					700					
Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val	
705				710						715					720	
Ala	Ser	Tyr	Cys	Pro	Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr	
				725					730					735		
Asp	Glu	Gly	Gly	Ser	Val	Pro	Val	Ile	Ile	Ser	Thr	Ser	Arg	Val	Ser	
			740					745					750			
Ala	Pro	Ala	Gly	Gly	Lys	Ala	Ser	Trp	Gly	Ala	Asp	Arg	Ser	Tyr	Trp	
		755				760						765				
Lys	Glu	Phe	Leu	Val	Met	Cys	Thr	Leu	Phe	Val	Leu	Ala	Val	Leu	Leu	
	770					775					780					
Pro	Val	Leu	Phe	Leu	Leu	Tyr	Arg	His	Arg	Asn	Ser	Met	Lys	Val	Phe	
785					790						795				800	
Leu	Lys	Gln	Gly	Glu	Cys	Ala	Ser	Val	His	Pro	Lys	Thr	Cys	Pro	Val	
				805					810					815		
Val	Leu	Pro	Pro	Glu	Thr	Arg	Pro	Leu	Asn	Gly	Leu	Gly	Pro	Pro	Ser	
			820					825					830			
Thr	Pro	Leu	Asp	His	Arg	Gly	Tyr	Gln	Ser	Pro	Arg	Arg	Thr	Ala	His	
		835				840										

```
<210> 13
<211> 3477
<212> DNA
<213> homo sapiens
```

20

ctcctgctgc	tgtctgtcct	gctgcagcgc	ccgcctccga	cctggggcgt	cagcccccg	300
atcagcctgc	ctctgggctc	tgaagagcgc	ccattcctca	gattcgaagc	tgaacacatc	360
tccaactaca	cagcccttct	gctgagcagg	gatggcagga	ccctgtacgt	gggtgctcga	420
gaggccctct	ttgcactcag	tagcaacctc	agcttcctgc	caggcgggga	gtaccaggag	480
ctgctttggg	gtgcagacgc	agagaagaaa	cagcagtgca	gcttcaaggg	caaggaccca	540
cagcgcgact	gtcaaaaacta	catcaagatc	ctcctgccgc	tcagcggcag	tcacctgttc	600
acctgtggca	cagcagcctt	cagccccatg	tgtacctaca	tcaacatgga	gaacttcacc	660
ctggcaaggg	acgagaaggg	gaatgtcctc	ctggaagatg	gcaagggccg	ttgtcccttc	720
gaccgaatt	tcaagtccac	tgccctggtg	gttgatggcg	agctctacac	tggaacagtc	780
agcagcttcc	aagggaatga	cccggccatc	tcgggagacc	aaagccttcg	ccccaccaag	840
accgagagct	ccctcaactg	gctgcaagac	ccagcttttg	tggcctcagc	ctacattcct	900
gagagcctgg	gcagcttgca	aggcgatgat	gacaagatct	actttttctt	cagcgagact	960
ggccagggaat	ttgagttctt	tgagaacacc	attgtgtccc	gcattgcccg	catctgcaag	1020
ggcgatgagg	gtggagagcg	ggtgctacag	cagcgttgga	cctccttctc	caaggcccag	1080
ctgctgtgct	cacggccccga	cgatggcttc	cccttcaacg	tgctgcagga	tgtcttcacg	1140
ctgagcccca	gccccagga	ctggcgtgac	acccttttct	atggggctct	cacttcccag	1200
tggcacaggg	gaactacaga	aggctctgcc	gtctgtgtct	tcacaatgaa	ggatgtgcag	1260
agagtcttca	gcggcctcta	caaggagggtg	aaccgtgaga	cacagcagtg	gtacaccgtg	1320
accaccccg	tgccacaccc	ccggcctgga	gcgtgcatca	ccaacagtg	ccgggaaagg	1380
aagatcaact	catccctgca	gctcccagac	cgctgtctga	acttcctcaa	ggaccacttc	1440
ctgatggacg	ggcagggtccg	aagccgcgatg	ctgctgtctg	agccccaggc	tcgctaccag	1500
cgcgtggctg	tacaccgcgt	ccctggcctg	caccacacct	acgatgtcct	cttcctgggc	1560
actggtgacg	gccggctcca	caaggcagtg	agcgtggggc	cccgggtgca	catcattgag	1620
gagctgcaga	tcttctcatc	gggacagccc	gtgcagaatc	tgctcctgga	caccacagg	1680
gggctgctgt	atgcggcctc	acactcgggc	gtagtccagg	tgcccatggc	caactgcagc	1740
ctgtacagga	gctgtgggga	ctgcctcctc	gcccgggacc	cctactgtgc	ttggagcggc	1800
tccagctgca	agcacgtcag	cctctaccag	cctcagctgg	ccaccaggcc	gtggatccag	1860
gacatcgagg	gagccagcgc	caaggacctt	tgcagcgcgt	cttcggttgt	gtccccgtct	1920
tttgtacca	caggggagaa	gccatgtgag	caagtcacgt	tccagcccaa	cacagtgaac	1980
actttggcct	gcccgtcctc	ctccaacctg	gcgacccgac	tctggctacg	caacggggcc	2040
cccgtcaatg	cctcggcctc	ctgccacgtg	ctaccactg	gggacctgct	gctgggtggc	2100
acccaacagc	tgggggagtt	ccagtgtctg	tcactagagg	agggcttcca	gcagctggta	2160
gccagctact	gcccagaggt	ggtggaggac	gggggtggcag	accaaacaga	tacggtgcc	2220
acaccccgcc	ctggagcgtg	catcaccaac	agtccccggg	aaaggaagat	caactcatcc	2280
ctgcagctcc	cagaccgcgt	gtgaacttc	ctcaaggacc	acttcctgat	ggacgggcag	2340
gtccgaagcc	gcatgtgtct	gtgcagccc	caggctcgtc	accagcgcgt	ggctgtacac	2400
cgcgtccctg	gcctgcacca	cacctacgat	gtcctcttcc	tgggcactgg	tgacggcccg	2460
ctccacaagg	cagttagcgt	gggcccccg	gtgcacatca	ttgaggagct	gcagatcttc	2520
tcacogggac	agcccgtgca	gaatctgtct	ctggacaccc	acagggggct	gctgtatgcg	2580
gcctcacact	cgggcgtagt	ccagggtgcc	atggccaact	gcagcctgta	caggagctgt	2640
ggggactgcc	tctctgccc	ggacccttac	tgtgcttgga	gcggctccag	ctgcaagcac	2700
gtcagcctct	accagcctca	gctggccacc	aggcctgga	tccaggacat	cgagggagcc	2760
agcgcgaagg	acctttgcag	cgcgtcttcg	gttgtgtccc	cgtcttttgt	accaacaggg	2820
gagaagccat	gtgagcaagt	ccagttccag	cccaacacag	tgaacacttt	ggcctgccc	2880
ctcctctcca	acctggcgac	cogactctgg	ctacgcaacg	gggccccgt	caatgcctcg	2940
gcctcctgcc	acgtgctacc	cactggggac	ctgctgtctg	tgggcaccca	acagctgggg	3000
gagttccagt	gctggtcact	agaggagggc	ttccagcagc	tggtagccag	ctactgccc	3060
gagggtggtg	aggacggggt	ggcaaacc	acagatgagg	gtggcagtg	acccgtcatt	3120
atcagcacat	cgctgtgag	tgcaccagct	ggtggcaagg	ccagctgggg	tgcagacagg	3180
tcctactgga	aggagttcct	ggtgatgtgc	acgctctttg	tgctggccgt	gctgtcccca	3240
gttttattct	tgctctaccg	gcaccggaac	agcatgaaag	tcttcctgaa	gcagggggaa	3300
tgtgcccagc	tgcaccccaa	gacctgccct	gtggtgctgc	cccctgagac	ccgccactc	3360
aacggccctag	ggccccctag	caccccgtct	gatcaccgag	ggtaccagtc	ccccgaagg	3420
accgcgcacc	tggtgcatga	cccgaagcc	cgggtgcctga	agcggatcca	gacatga	3477

<210> 14

<211> 1158  
 <212> PRT  
 <213> homo sapiens

<400> 14

Met	Pro	Ser	Gln	Gly	Arg	Val	Glu	Ser	Cys	Ser	Cys	Arg	Ser	Gly	Gly
1				5					10					15	
Gly	Gly	Pro	Arg	Gly	Asp	Ser	Gly	Ala	Asp	Arg	Gly	Ala	Glu	Leu	Pro
			20					25					30		
Pro	Val	Ser	Pro	Ala	Glu	Pro	Pro	Glu	Pro	Glu	Pro	Arg	Asp	Thr	Val
		35					40					45			
Ala	Pro	Ala	Leu	Arg	Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp
	50					55					60				
Leu	Ala	Ala	Pro	Trp	Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu
65					70					75					80
Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala
				85					90					95	
Leu	Ser	Pro	Arg	Ile	Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe
			100					105					110		
Leu	Arg	Phe	Glu	Ala	Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu
		115					120					125			
Ser	Arg	Asp	Gly	Arg	Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe
	130					135					140				
Ala	Leu	Ser	Ser	Asn	Leu	Ser	Phe	Leu	Pro	Gly	Gly	Glu	Tyr	Gln	Glu
145					150					155					160
Leu	Leu	Trp	Gly	Ala	Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys
				165					170					175	
Gly	Lys	Asp	Pro	Gln	Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu
			180					185					190		
Pro	Leu	Ser	Gly	Ser	His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser
		195					200					205			
Pro	Met	Cys	Thr	Tyr	Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp
	210					215					220				
Glu	Lys	Gly	Asn	Val	Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe
225					230					235					240
Asp	Pro	Asn	Phe	Lys	Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr
				245					250					255	
Thr	Gly	Thr	Val	Ser	Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg
			260					265					270		
Ser	Gln	Ser	Leu	Arg	Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu
		275					280					285			
Gln	Asp	Pro	Ala	Phe	Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly
	290					295					300				
Ser	Leu	Gln	Gly	Asp	Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr
305					310					315					320
Gly	Gln	Glu	Phe	Glu	Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala
				325					330					335	
Arg	Ile	Cys	Lys	Gly	Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg
				340				345					350		
Trp	Thr	Ser	Phe	Leu	Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp
		355					360					365			
Gly	Phe	Pro	Phe	Asn	Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser
	370					375					380				
Pro	Gln	Asp	Trp	Arg	Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln
385					390					395					400
Trp	His	Arg	Gly	Thr	Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met

405										410					415				
Lys	Asp	Val	Gln	Arg	Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg				
420								425					430						
Glu	Thr	Gln	Gln	Trp	Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg				
435							440					445							
Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser				
450						455					460								
Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe				
465					470					475					480				
Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln				
485								490					495						
Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His				
500							505						510						
Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys				
515							520					525							
Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile				
530						535					540								
Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg				
545					550					555					560				
Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met				
565								570						575					
Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg				
580							585					590							
Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu				
595						600					605								
Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly				
610						615					620								
Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser				
625					630					635					640				
Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro				
645								650						655					
Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr				
660							665					670							
Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys				
675							680					685							
His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu				
690						695					700								
Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val				
705					710					715					720				
Ala	Ser	Tyr	Cys	Pro	Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr				
725								730						735					
Asp	Thr	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala				
740							745					750							
Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu				
755						760				</									

850		855		860
Gly Val Val Gln Val Pro Met Ala Asn Cys Ser Leu Tyr Arg Ser Cys				
865		870		875
Gly Asp Cys Leu Leu Ala Arg Asp Pro Tyr Cys Ala Trp Ser Gly Ser				880
	885		890	895
Ser Cys Lys His Val Ser Leu Tyr Gln Pro Gln Leu Ala Thr Arg Pro				
	900		905	910
Trp Ile Gln Asp Ile Glu Gly Ala Ser Ala Lys Asp Leu Cys Ser Ala				
	915		920	925
Ser Ser Val Val Ser Pro Ser Phe Val Pro Thr Gly Glu Lys Pro Cys				
	930		935	940
Glu Gln Val Gln Phe Gln Pro Asn Thr Val Asn Thr Leu Ala Cys Pro				
945		950		955
Leu Leu Ser Asn Leu Ala Thr Arg Leu Trp Leu Arg Asn Gly Ala Pro				
	965		970	975
Val Asn Ala Ser Ala Ser Cys His Val Leu Pro Thr Gly Asp Leu Leu				
	980		985	990
Leu Val Gly Thr Gln Gln Leu Gly Glu Phe Gln Cys Trp Ser Leu Glu				
	995		1000	1005
Glu Gly Phe Gln Gln Leu Val Ala Ser Tyr Cys Pro Glu Val Val Glu				
	1010		1015	1020
Asp Gly Val Ala Asn Gln Thr Asp Glu Gly Gly Ser Val Pro Val Ile				
1025		1030		1035
Ile Ser Thr Ser Arg Val Ser Ala Pro Ala Gly Gly Lys Ala Ser Trp				
	1045		1050	1055
Gly Ala Asp Arg Ser Tyr Trp Lys Glu Phe Leu Val Met Cys Thr Leu				
	1060		1065	1070
Phe Val Leu Ala Val Leu Leu Pro Val Leu Phe Leu Leu Tyr Arg His				
	1075		1080	1085
Arg Asn Ser Met Lys Val Phe Leu Lys Gln Gly Glu Cys Ala Ser Val				
	1090		1095	1100
His Pro Lys Thr Cys Pro Val Val Leu Pro Pro Glu Thr Arg Pro Leu				
1105		1110		1115
Asn Gly Leu Gly Pro Pro Ser Thr Pro Leu Asp His Arg Gly Tyr Gln				
	1125		1130	1135
Ser Pro Arg Arg Thr Ala His Leu Val His Asp Pro Gln Ala Arg Cys				
	1140		1145	1150
Leu Lys Arg Ile Gln Thr				
	1155			

<210> 15

<211> 2673

<212> DNA

<213> homo sapiens

<400> 15

atgccagcc	agggcaggg	ggagagctgc	agctgcaggt	ccggaggcgg	gggcccccg	60
ggcgactcg	gggcggacc	cggggcggag	ctgccgccc	tgagtccgg	cgagccacct	120
gagcccgag	cgcgggacac	cgctcgtcct	gctctccgaa	tgctgcgcac	cgcgatgggc	180
ctgaggagct	ggctcgccgc	cccatggggc	gcgctgcgc	ctcggccacc	gctgctgctg	240
ctcctgctgc	tgctgctcct	gctgcagccg	ccgcctccga	cctgggcgct	cagcccccg	300
atcagcctgc	ctctgggctc	tgaagagcgg	ccattcctca	gattcgaagc	tgaacacatc	360
tccaactaca	cagcccttct	gctgagcagg	gatggcagga	ccctgtacgt	gggtgctcga	420
gaggccctct	ttgcaactcag	tagcaacctc	agcttcctgc	caggcgggga	gtaccaggag	480
ctgctttggg	gtgcagacgc	agagaagaaa	cagcagtgc	gcttcaaggg	caaggaccca	540
cagcgcgact	gtcaaaacta	catcaagatc	ctcctgccgc	tcagcggcag	tcacctgttc	600



```

acctgtggca cagcagcctt cagccccatg tgtacctaca tcaacatgga gaacttcacc 660
ctggcaaggg acgagaaggg gaatgtcttc ctggaagatg gcaagggccg ttgtcccttc 720
gacccgaatt tcaagtcacac tgccctgggt gttgatggcg agctctacac tggacagtc 780
agcagcttcc aaggggaatga cccggccatc tcgcggagcc aaagccttcg cccaccaag 840
accgagagct cctcaactg gctgcaagac ccagcttttg tggcctcagc ctacattcct 900
gagagcctgg gcagcttgca aggcgatgat gacaagatct actttttctt cagcgagact 960
ggccaggaat ttgagttctt tgagaacacc attgtgtccc gcattgcccg catctgcaag 1020
ggcgatgagg gtggagagcg ggtgctacag cagcgctgga cctccttctt caaggcccag 1080
ctgctgtgct cacggccccg cgatggcttc ccttcaacg tgctgcagga tgtcttcacg 1140
ctgagcccca gccccagga ctggcgtgac acccttttct atggggtctt cacttcccag 1200
tgccacaggg gaactacaga aggctctgcc gtctgtgtct tcacaatgaa ggatgtgcag 1260
agagtcttca gcggcctcta caaggaggtg aaccgtgaga cacagcagtg gtacaccgtg 1320
acccacccgg tgcccacacc ccggcctgga gcgtgcatca ccaacagtgc ccgggaaagg 1380
aagatcaact catccctgca gctcccagac cgcgtgctga acttcctcaa ggaccacttc 1440
ctgatggacg ggcaggtccg aagcgcgatg ctgctgctgc agccccaggc tcgctaccag 1500
cgcgtggctg tacaccgctg cctggcctg caccacacct acgatgtcct cttcctgggc 1560
actggtgacg gccggtcca caaggcagtg agcgtgggcc cccgggtgca catcattgag 1620
gagctgcaga tcttctcatc gggacagccc gtgcagaatc tgctcctgga caccacaggg 1680
gggctgctgt atgcggcctc aactcgggc gtagtccagg tgcccatggc caactgcagc 1740
ctgtacagga gctgtgggga ctgcctcttc gcccgggacc cctactgtgc ttggagcggc 1800
tccagctgca agcacgtcag cctctaccag cctcagctgg ccaccaggcc gtggatccag 1860
gacatcgagg gagccagcgc caaggacctt tgcagcgcgt cttcggttgt gtccccgtct 1920
tttgtaccaa caggggagaa gccatgtgag caagtcagt tccagcccaa cacagtgaac 1980
actttggcct gcccgctcct ctccaacctg gcgacccgac tctggctacg caacggggcc 2040
cccgtaactg cctcggcctc ctgccacgtg ctaccactg gggacctgct gctggtgggc 2100
acccaacagc tgggggagtt ccagtgtgg tcactagagg agggcttcca gcagctggta 2160
gccagctact gccagaggt ggtggaggac ggggtggcag accaaacaga tgagggtggc 2220
agtgtaccgg tcattatcag cacatcgcgt gtgagtgcac cagctggtgg caaggccagc 2280
tggggtgcag acaggtccta ctggaaggag ttcttggtga tgtgcacgct ctttgtgctg 2340
gccgtgctgc tcccagtttt attcttgctc taccggcacc ggaacagcat gaaagtcttc 2400
ctgaagcagg gggaatgtgc cagcgtgcac cccaagacct gccctgtggt gctgccccct 2460
gagacccgcc cactcaacgg cctagggccc cctagcacc cgctcgatca ccgagggtag 2520
cagtcctgtg cagacagccc cccgggggcc cgagtcttca ctgagtcaga gaagaggcca 2580
ctcagcatcc aagacagctt cgtggaggta tcccagtggt gccccggcc cccgggtccgc 2640
cttggtcgg agatccgtga ctctgtggtg tga 2673

```

<210> 16  
 <211> 890  
 <212> PRT  
 <213> homo sapiens

<400> 16

Met	Pro	Ser	Gln	Gly	Arg	Val	Glu	Ser	Cys	Ser	Cys	Arg	Ser	Gly	Gly
1				5				10						15	
Gly	Gly	Pro	Arg	Gly	Asp	Ser	Gly	Ala	Asp	Arg	Gly	Ala	Glu	Leu	Pro
			20				25						30		
Pro	Val	Ser	Pro	Ala	Glu	Pro	Pro	Glu	Pro	Glu	Pro	Arg	Asp	Thr	Val
			35				40						45		
Ala	Pro	Ala	Leu	Arg	Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp
			50				55				60				
Leu	Ala	Ala	Pro	Trp	Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu
65					70					75				80	
Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala
				85					90					95	
Leu	Ser	Pro	Arg	Ile	Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe
			100					105						110	

Leu	Arg	Phe	Glu	Ala	Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu
		115					120					125			
Ser	Arg	Asp	Gly	Arg	Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe
		130				135					140				
Ala	Leu	Ser	Ser	Asn	Leu	Ser	Phe	Leu	Pro	Gly	Gly	Glu	Tyr	Gln	Glu
145					150					155					160
Leu	Leu	Trp	Gly	Ala	Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys
				165					170						175
Gly	Lys	Asp	Pro	Gln	Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu
			180					185					190		
Pro	Leu	Ser	Gly	Ser	His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser
		195					200					205			
Pro	Met	Cys	Thr	Tyr	Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp
		210				215					220				
Glu	Lys	Gly	Asn	Val	Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe
225					230					235					240
Asp	Pro	Asn	Phe	Lys	Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr
				245					250						255
Thr	Gly	Thr	Val	Ser	Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg
			260					265						270	
Ser	Gln	Ser	Leu	Arg	Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu
		275					280					285			
Gln	Asp	Pro	Ala	Phe	Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly
		290				295					300				
Ser	Leu	Gln	Gly	Asp	Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr
305				310						315					320
Gly	Gln	Glu	Phe	Glu	Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala
				325					330						335
Arg	Ile	Cys	Lys	Gly	Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg
			340					345					350		
Trp	Thr	Ser	Phe	Leu	Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp
		355					360					365			
Gly	Phe	Pro	Phe	Asn	Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser
		370			375						380				
Pro	Gln	Asp	Trp	Arg	Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln
385					390					395					400
Trp	His	Arg	Gly	Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met	
				405				410						415	
Lys	Asp	Val	Gln	Arg	Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg
			420					425					430		
Glu	Thr	Gln	Gln	Trp	Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg
		435					440					445			
Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser
		450				455					460				
Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe
465					470					475					480
Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln
				485				490						495	
Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His
			500					505					510		
Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys
		515					520					525			
Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile
		530				535					540				
Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg
545					550					555					560

Gly Leu Leu Tyr Ala Ala Ser His Ser Gly Val Val Gln Val Pro Met  
565 570 575  
Ala Asn Cys Ser Leu Tyr Arg Ser Cys Gly Asp Cys Leu Leu Ala Arg  
580 585 590  
Asp Pro Tyr Cys Ala Trp Ser Gly Ser Ser Cys Lys His Val Ser Leu  
595 600 605  
Tyr Gln Pro Gln Leu Ala Thr Arg Pro Trp Ile Gln Asp Ile Glu Gly  
610 615 620  
Ala Ser Ala Lys Asp Leu Cys Ser Ala Ser Ser Val Val Ser Pro Ser  
625 630 635 640  
Phe Val Pro Thr Gly Glu Lys Pro Cys Glu Gln Val Gln Phe Gln Pro  
645 650 655  
Asn Thr Val Asn Thr Leu Ala Cys Pro Leu Leu Ser Asn Leu Ala Thr  
660 665 670  
Arg Leu Trp Leu Arg Asn Gly Ala Pro Val Asn Ala Ser Ala Ser Cys  
675 680 685  
His Val Leu Pro Thr Gly Asp Leu Leu Leu Val Gly Thr Gln Gln Leu  
690 695 700  
Gly Glu Phe Gln Cys Trp Ser Leu Glu Glu Gly Phe Gln Gln Leu Val  
705 710 715 720  
Ala Ser Tyr Cys Pro Glu Val Val Glu Asp Gly Val Ala Asp Gln Thr  
725 730 735  
Asp Glu Gly Gly Ser Val Pro Val Ile Ile Ser Thr Ser Arg Val Ser  
740 745 750  
Ala Pro Ala Gly Gly Lys Ala Ser Trp Gly Ala Asp Arg Ser Tyr Trp  
755 760 765  
Lys Glu Phe Leu Val Met Cys Thr Leu Phe Val Leu Ala Val Leu Leu  
770 775 780  
Pro Val Leu Phe Leu Leu Tyr Arg His Arg Asn Ser Met Lys Val Phe  
785 790 795 800  
Leu Lys Gln Gly Glu Cys Ala Ser Val His Pro Lys Thr Cys Pro Val  
805 810 815  
Val Leu Pro Pro Glu Thr Arg Pro Leu Asn Gly Leu Gly Pro Pro Ser  
820 825 830  
Thr Pro Leu Asp His Arg Gly Tyr Gln Ser Leu Ser Asp Ser Pro Pro  
835 840 845  
Gly Ala Arg Val Phe Thr Glu Ser Glu Lys Arg Pro Leu Ser Ile Gln  
850 855 860  
Asp Ser Phe Val Glu Val Ser Pro Val Cys Pro Arg Pro Arg Val Arg  
865 870 875 880  
Leu Gly Ser Glu Ile Arg Asp Ser Val Val  
885 890

<210> 17

<211> 3558

<212> DNA

<213> homo sapiens

<400> 17

atgccagcc	agggcagggt	ggagagctgc	agctgcaggt	ccggaggcgg	gggcccccg	60
ggcgactcgg	gggcgaccg	cggggcggag	ctgccgcccg	tgagtccggc	cgagccacct	120
gagcccgagc	cgcgggacac	cgctcgtcct	gctctccgaa	tgctgcgcac	cgcgatgggc	180
ctgaggagct	ggctcggcgc	cccatggggc	gcgctgccgc	ctcggccacc	gctgctgctg	240
ctcctgctgc	tgctgctcct	gctgcagccg	ccgcctccga	cctgggcgct	cagcccccg	300
atcagcctgc	ctctgggctc	tgaagagcgg	ccattcctca	gattcgaagc	tgaacacatc	360
tccaactaca	cagcccttct	gctgagcagg	gatggcagga	ccctgtacgt	gggtgctcga	420

gaggccctct	ttgcaactcag	tagcaacctc	agcttcctgc	caggcgggga	gtaccaggag	480
ctgctttggg	gtgcagacgc	agagaagaaa	cagcagtga	gcttcaaggg	caaggaccca	540
cagcgcgact	gtcaaaacta	catcaagatc	ctcctgccc	tcagcggcag	tcacctgttc	600
acctgtggca	cagcagcctt	cagccccatg	tgtacctaca	tcaacatgga	gaacttcacc	660
ctggcaaggg	acgagaaggg	gaatgtcctc	ctggaagatg	gcaagggccg	ttgtcccttc	720
gaccggaatt	tcaagtccac	tgccctgggtg	gttgatggcg	agctctacac	tggaaacagtc	780
agcagcttcc	aagggaatga	cccggccatc	tcgcggagcc	aaagccttcg	ccccaccaag	840
accgagagct	ccctcaactg	gctgcaagac	ccagcttttg	tggcctcagc	ctacattcct	900
gagagcctgg	gcagcttgca	aggcgatgat	gacaagatct	actttttctt	cagcgagact	960
ggccagggaat	ttgagttctt	tgagaacacc	attgtgtccc	gcattgccc	catctgcaag	1020
ggcgatgagg	gtggagagcg	ggtgtctacg	cagcgtgga	cctccttctt	caaggcccag	1080
ctgctgtgct	cacggccccg	cgatggcttc	cccttcaacg	tgctgcagga	tgtcttcacg	1140
ctgagcccca	gccccagga	ctggcgtgac	acccttttct	atgggggtctt	cacttcccag	1200
tggcacaggg	gaactacaga	aggctctgcc	gtctgtgtct	tcacaatgaa	ggatgtgcag	1260
agagtcttca	gcggcctcta	caaggaggtg	aaccgtgaga	cacagcagtg	gtacaccgtg	1320
accaccccg	tgccacaccc	ccggcctgga	gcgtgcatca	ccaacagtg	ccgggaaagg	1380
aagatcaact	catccctgca	gctcccagac	cgctgtctga	acttcctcaa	ggaccacttc	1440
ctgatggacg	ggcaggtccg	aagccgcgatg	ctgctgtctg	agccccaggc	tcgctaccag	1500
cgcgtggctg	tacaccgcgt	ccctggcctg	caccacacct	acgatgtcct	cttccctgggc	1560
actggtgacg	gccggctcca	caaggcagtg	agcgtggggc	cccgggtgca	catcattgag	1620
gagctgcaga	tcttctcatc	gggacagccc	gtgcagaatc	tgctcctgga	caccacagg	1680
gggctgctgt	atgcggcctc	acactcgggc	gtagtccagg	tgcccatggc	caactgcagc	1740
ctgtacagga	gctgtgggga	ctgcctcctc	gccggggacc	cctactgtgc	ttggagcggc	1800
tccagctgca	agcacgtcag	cctctaccag	cctcagctgg	ccaccaggcc	gtggatccag	1860
gacatcgagg	gagccagcgc	caaggacctt	tgcagcgcgt	cttcggttgt	gtccccgtct	1920
tttgtacca	caggggagaa	gccatgtgag	caagtccagt	tccagcccaa	cacagtgaac	1980
actttggcct	gcccgtcctt	ctccaacctg	gcgacccgac	tctggctacg	caacggggcc	2040
cccgtcaatg	cctcggcctc	ctgccacgtg	ctaccactg	gggacctgct	gctggtgggc	2100
acccaacagc	tgggggagtt	ccagtgtctg	tcactagagg	agggcttcca	gcagctggta	2160
gccagctact	gcccagaggt	ggtggaggac	gggggtggcag	accaaacaga	tacggtgccc	2220
acaccccggc	ctggagcgtg	catcaccaac	agtgcgccgg	aaaggaagat	caactcatcc	2280
ctgcagctcc	cagaccgcgt	gctgaacttc	ctcaaggacc	acttcctgat	ggacgggcag	2340
gtccgaagcc	gcatgtctgt	gctgcagccc	caggctcgt	accagcgcgt	ggctgtacac	2400
cgcgtccctg	gctgcacca	cacctacgat	gtcctcttcc	tgggcactgg	tgacggccgg	2460
ctccacaagg	cagtgagcgt	gggcccccg	gtgcacatca	ttgaggagct	gcagatcttc	2520
tcacgaggac	agcccgtgca	gaatctgtct	ctggacaccc	acagggggct	gctgtatgct	2580
gcctcacact	cgggcgtagt	ccaggtgccc	atggccaact	gcagcctgta	caggagctgt	2640
ggggactgcc	tctcgcgccg	ggacccctac	tgtgcttgga	gcggctccag	ctgcaagcac	2700
gtcagcctct	accagcctca	gctggccacc	aggccgtgga	tccaggacat	cgagggagcc	2760
agcgccaagg	acctttgcag	cgcgtcttcg	gttggtgtcc	cgtcttttgt	accaacagg	2820
gagaagccat	gtgagcaagt	ccagttccag	cccaacacag	tgaacacttt	ggcctgccc	2880
ctcctctcca	acctggcgac	ccgactctgg	ctacgcaacg	gggccccgt	caatgcctcg	2940
gcctcctgcc	acgtgctacc	cactggggac	ctgctgtctg	tgggcaccca	acagctgggg	3000
gagttccagt	gctggtcact	agaggagggc	ttccagcagc	tggtagccag	ctactgccc	3060
gaggtggtgg	aggacgggg	ggcaaacc	acagatgagg	gtggcagtg	acccgtcatt	3120
atcagcacat	cgcgtgtgag	tgcaccagct	ggtggcaagg	ccagctgggg	tgcagacagg	3180
tcctactgga	aggagttcct	ggtgatgtgc	acgctctttg	tgctggccgt	gctgctccc	3240
gttttattct	tgctctaccg	gcaccggaac	agcatgaaag	tcttcttgaa	gcagggggaa	3300
tgtgccagcg	tgcaccccaa	gacctgccct	gtgggtgctg	cccctgagac	ccgcccactc	3360
aacggcctag	ggccccctag	caccccgtc	gatcaccgag	ggtaccagtc	cctgtcagac	3420
agcccccccg	gggcccaggt	cttccactgag	tcagagaaga	ggccactcag	catccaagac	3480
agcttcgtgg	aggtatcccc	agtgtgcccc	cggccccggg	tccgccttgg	ctcgagatc	3540
cgtgactctg	tgggtgta					3558

<210> 18

<211> 1185

<212> PRT

<213> homo sapiens

<400> 18

Met Pro Ser Gln Gly Arg Val Glu Ser Cys Ser Cys Arg Ser Gly Gly  
1 5 10 15  
Gly Gly Pro Arg Gly Asp Ser Gly Ala Asp Arg Gly Ala Glu Leu Pro  
20 25 30  
Pro Val Ser Pro Ala Glu Pro Pro Glu Pro Glu Pro Arg Asp Thr Val  
35 40 45  
Ala Pro Ala Leu Arg Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp  
50 55 60  
Leu Ala Ala Pro Trp Gly Ala Leu Pro Pro Arg Pro Pro Leu Leu Leu  
65 70 75 80  
Leu Leu Leu Leu Leu Leu Leu Leu Gln Pro Pro Pro Pro Thr Trp Ala  
85 90 95  
Leu Ser Pro Arg Ile Ser Leu Pro Leu Gly Ser Glu Glu Arg Pro Phe  
100 105 110  
Leu Arg Phe Glu Ala Glu His Ile Ser Asn Tyr Thr Ala Leu Leu Leu  
115 120 125  
Ser Arg Asp Gly Arg Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe  
130 135 140  
Ala Leu Ser Ser Asn Leu Ser Phe Leu Pro Gly Gly Glu Tyr Gln Glu  
145 150 155 160  
Leu Leu Trp Gly Ala Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys  
165 170 175  
Gly Lys Asp Pro Gln Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu  
180 185 190  
Pro Leu Ser Gly Ser His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser  
195 200 205  
Pro Met Cys Thr Tyr Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp  
210 215 220  
Glu Lys Gly Asn Val Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe  
225 230 235 240  
Asp Pro Asn Phe Lys Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr  
245 250 255  
Thr Gly Thr Val Ser Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg  
260 265 270  
Ser Gln Ser Leu Arg Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu  
275 280 285  
Gln Asp Pro Ala Phe Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly  
290 295 300  
Ser Leu Gln Gly Asp Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr  
305 310 315 320  
Gly Gln Glu Phe Glu Phe Phe Glu Asn Thr Ile Val Ser Arg Ile Ala  
325 330 335  
Arg Ile Cys Lys Gly Asp Glu Gly Gly Glu Arg Val Leu Gln Gln Arg  
340 345 350  
Trp Thr Ser Phe Leu Lys Ala Gln Leu Leu Cys Ser Arg Pro Asp Asp  
355 360 365  
Gly Phe Pro Phe Asn Val Leu Gln Asp Val Phe Thr Leu Ser Pro Ser  
370 375 380  
Pro Gln Asp Trp Arg Asp Thr Leu Phe Tyr Gly Val Phe Thr Ser Gln  
385 390 395 400  
Trp His Arg Gly Thr Thr Glu Gly Ser Ala Val Cys Val Phe Thr Met  
405 410 415

Lys	Asp	Val	Gln	Arg	Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg	420	425	430
Glu	Thr	Gln	Gln	Trp	Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg	435	440	445
Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser	450	455	460
Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe	465	470	475
Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln	485	490	495
Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His	500	505	510
Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys	515	520	525
Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile	530	535	540
Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg	545	550	555
Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	565	570	575
Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg	580	585	590
Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	595	600	605
Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	610	615	620
Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	625	630	635
Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro	645	650	655
Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr	660	665	670
Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys	675	680	685
His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu	690	695	700
Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val	705	710	715
Ala	Ser	Tyr	Cys	Pro	Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr	725	730	735
Asp	Thr	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	740	745	750
Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	755	760	765
Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	770	775	780
Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	785	790	795
Arg	Val	Pro	Gly	Leu	His	His	Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	805	810	815
Gly	Asp	Gly	Arg	Leu	His	Lys	Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	820	825	830
Ile	Ile	Glu	Glu	Leu	Gln	Ile	Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	835	840	845
Leu	Leu	Leu	Asp	Thr	His	Arg	Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	850	855	860

Gly Val Val Gln Val Pro Met Ala Asn Cys Ser Leu Tyr Arg Ser Cys  
 865 870 875 880  
 Gly Asp Cys Leu Leu Ala Arg Asp Pro Tyr Cys Ala Trp Ser Gly Ser  
 885 890 895  
 Ser Cys Lys His Val Ser Leu Tyr Gln Pro Gln Leu Ala Thr Arg Pro  
 900 905 910  
 Trp Ile Gln Asp Ile Glu Gly Ala Ser Ala Lys Asp Leu Cys Ser Ala  
 915 920 925  
 Ser Ser Val Val Ser Pro Ser Phe Val Pro Thr Gly Glu Lys Pro Cys  
 930 935 940  
 Glu Gln Val Gln Phe Gln Pro Asn Thr Val Asn Thr Leu Ala Cys Pro  
 945 950 955 960  
 Leu Leu Ser Asn Leu Ala Thr Arg Leu Trp Leu Arg Asn Gly Ala Pro  
 965 970 975  
 Val Asn Ala Ser Ala Ser Cys His Val Leu Pro Thr Gly Asp Leu Leu  
 980 985 990  
 Leu Val Gly Thr Gln Gln Leu Gly Glu Phe Gln Cys Trp Ser Leu Glu  
 995 1000 1005  
 Glu Gly Phe Gln Gln Leu Val Ala Ser Tyr Cys Pro Glu Val Val Glu  
 1010 1015 1020  
 Asp Gly Val Ala Asn Gln Thr Asp Glu Gly Gly Ser Val Pro Val Ile  
 1025 1030 1035 1040  
 Ile Ser Thr Ser Arg Val Ser Ala Pro Ala Gly Gly Lys Ala Ser Trp  
 1045 1050 1055  
 Gly Ala Asp Arg Ser Tyr Trp Lys Glu Phe Leu Val Met Cys Thr Leu  
 1060 1065 1070  
 Phe Val Leu Ala Val Leu Leu Pro Val Leu Phe Leu Leu Tyr Arg His  
 1075 1080 1085  
 Arg Asn Ser Met Lys Val Phe Leu Lys Gln Gly Glu Cys Ala Ser Val  
 1090 1095 1100  
 His Pro Lys Thr Cys Pro Val Val Leu Pro Pro Glu Thr Arg Pro Leu  
 1105 1110 1115 1120  
 Asn Gly Leu Gly Pro Pro Ser Thr Pro Leu Asp His Arg Gly Tyr Gln  
 1125 1130 1135  
 Ser Leu Ser Asp Ser Pro Pro Gly Ala Arg Val Phe Thr Glu Ser Glu  
 1140 1145 1150  
 Lys Arg Pro Leu Ser Ile Gln Asp Ser Phe Val Glu Val Ser Pro Val  
 1155 1160 1165  
 Cys Pro Arg Pro Arg Val Arg Leu Gly Ser Glu Ile Arg Asp Ser Val  
 1170 1175 1180  
 Val  
 1185

<210> 19

<211> 2145

<212> DNA

<213> homo sapiens

<400> 19

atgctgcgca ccgcgatggg cctgaggagc tggctcgccg ccccatgggg cgcgctgccg	60
cctcgccac cgctgctgct gtcctgctg ctgctgctcc tgctgcagcc gccgcctccg	120
acctggggcg tcagccccc gacagcctg cctctgggct ctgaagagcg gccattcctc	180
agattcgaag ctgaacacat ctccaactac acagcccttc tgctgagcag ggatggcagg	240
acctgtacg tgggtgctcg agaggccctc tttgcaacta gtagcaacct cagcttctcg	300
ccaggcgggg agtaccagga gctgctttgg ggtgcagacg cagagaagaa acagcagtcg	360
agcttcaagg gcaaggaccc acagcgcgac tgtcaaaact acatcaagat cctcctgccg	420

```

ctcagcggca gtcacctgtt cacctgtggc acagcagcct tcagcccat gtgtacctac 480
atcaacatgg agaacttcac cctggcaagg gacgagaagg ggaatgtcct cctggaagat 540
ggcaagggcc gttgtccctt cgacccgaat ttcaagtcca ctgccctggg ggttgatggc 600
gagctctaca ctggaacagt cagcagcttc caaggggaatg acccggccat ctgcgagagc 660
caaagccttc gccccaccaa gaccgagagc tccctcaact ggctgcaaga cccagctttt 720
gtggcctcag cctacattcc tgagagcctg ggcagcttgc aaggcgatga tgacaagatc 780
tactttttct tcagcgagac tggccaggaa tttgagttct ttgagaacac catttgtgtcc 840
cgcattgccc gcatctgcaa gggcgatgag ggtggagagc gggtgctaca gcagcgctgg 900
acctccttcc tcaaggccca gctgctgtgc tcacggcccg acgatggctt ccccttcaac 960
gtgctgcagg atgtcttcac gctgagcccc agccccagg actggcgtga cacccttttc 1020
tatgggggtct tcacttccca gtggcacagg ggaactacag aaggctctgc cgtctgtgtc 1080
ttcacaatga aggatgtgca gagagtcttc agcggcctct acaaggaggt gaaccgtgag 1140
acacagcagt ggtacaccgt gacccaccgg gtgcccacac cccggcctgg agcgtgcatc 1200
accaacagtg cccgggaaag gaagatcaac tcctccctgc agctcccaga ccgctgctgtg 1260
aacttcctca aggaccactt cctgatggac gggcaggtcc gaagccgcat gctgctgctg 1320
cagccccagg ctgcctacca gcgcgtggct gtacaccgcy tccctggcct gcaccacacc 1380
tacgatgtcc tcttctggg cactgggtgac ggccggctcc acaaggcagt gagcgtgggc 1440
ccccgggtgc acatcattga ggagctgcag atcttctcat cgggacagcc cgtgcagaat 1500
ctgctcctgg acaccacag ggggctgctg tatgcgccct cacactcggg cgtagtccag 1560
gtgcccattg ccaactgcag cctgtacagg agctgtgggg actgcctcct cgccccggac 1620
ccctactgtg cttggagcgg ctccagctgc aagcacgtca gcctctacca gcctcagctg 1680
gccaccaggc cgtggatcca ggacatcgag ggagccagcg ccaaggacct ttgcagcgcg 1740
tcttcgggtg tgtccccgtc ttttgtacca acaggggaga agccatgtga gcaagtccag 1800
ttccagccca acacagtga cactttggcc tgcccgctcc tctccaacct ggcgaccgca 1860
ctctggctac gcaacggggc ccccgctcaat gcctcggcct cctgccacgt gctaccact 1920
ggggacctgc tgctggtggg caccacacag ctgggggagt tccagtgtgt gtcactagag 1980
gagggtctcc agcagctggt agccagctac tgcccagagg tgggtggagga cggggtggca 2040
gaccaaacag atgagggtgg cagtgtaccc gtcattatca gcacatcgcg tgtgagtgca 2100
cccagacccc ggctggggcc tgtccctgga tgcaggctac tctag 2145

```

<210> 20  
 <211> 714  
 <212> PRT  
 <213> homo sapiens

<400> 20

Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp	Leu	Ala	Ala	Pro	Trp
1				5					10					15	
Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu
			20					25					30		
Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala	Leu	Ser	Pro	Arg	Ile
			35					40				45			
Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe	Leu	Arg	Phe	Glu	Ala
			50				55					60			
Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu	Ser	Arg	Asp	Gly	Arg
65					70					75				80	
Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe	Ala	Leu	Ser	Ser	Asn
			85						90					95	
Leu	Ser	Phe	Leu	Pro	Gly	Gly	Glu	Tyr	Gln	Glu	Leu	Leu	Trp	Gly	Ala
			100					105					110		
Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys	Gly	Lys	Asp	Pro	Gln
			115				120					125			
Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu	Pro	Leu	Ser	Gly	Ser
			130				135					140			
His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser	Pro	Met	Cys	Thr	Tyr
145					150					155					160



Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp	Glu	Lys	Gly	Asn	Val	165	170	175
Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe	Asp	Pro	Asn	Phe	Lys	180	185	190
Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr	Thr	Gly	Thr	Val	Ser	195	200	205
Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg	Ser	Gln	Ser	Leu	Arg	210	215	220
Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu	Gln	Asp	Pro	Ala	Phe	225	230	235
Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly	Ser	Leu	Gln	Gly	Asp	245	250	255
Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr	Gly	Gln	Glu	Phe	Glu	260	265	270
Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala	Arg	Ile	Cys	Lys	Gly	275	280	285
Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg	Trp	Thr	Ser	Phe	Leu	290	295	300
Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp	Gly	Phe	Pro	Phe	Asn	305	310	315
Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser	Pro	Gln	Asp	Trp	Arg	325	330	335
Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln	Trp	His	Arg	Gly	Thr	340	345	350
Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met	Lys	Asp	Val	Gln	Arg	355	360	365
Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg	Glu	Thr	Gln	Gln	Trp	370	375	380
Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile	385	390	395
Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro	405	410	415
Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln	420	425	430
Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg	435	440	445
Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His	Thr	Tyr	Asp	Val	Leu	450	455	460
Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys	Ala	Val	Ser	Val	Gly	465	470	475
Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile	Phe	Ser	Ser	Gly	Gln	485	490	495
Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg	Gly	Leu	Leu	Tyr	Ala	500	505	510
Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	Ala	Asn	Cys	Ser	Leu	515	520	525
Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Ala	530	535	540
Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	Tyr	Gln	Pro	Gln	Leu	545	550	555
Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	Ala	Ser	Ala	Lys	Asp	565	570	575
Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	Phe	Val	Pro	Thr	Gly	580	585	590
Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro	Asn	Thr	Val	Asn	Thr	595	600	605

Leu Ala Cys Pro Leu Leu Ser Asn Leu Ala Thr Arg Leu Trp Leu Arg  
 610 615 620  
 Asn Gly Ala Pro Val Asn Ala Ser Ala Ser Cys His Val Leu Pro Thr  
 625 630 635 640  
 Gly Asp Leu Leu Leu Val Gly Thr Gln Gln Leu Gly Glu Phe Gln Cys  
 645 650 655  
 Trp Ser Leu Glu Glu Gly Phe Gln Gln Leu Val Ala Ser Tyr Cys Pro  
 660 665 670  
 Glu Val Val Glu Asp Gly Val Ala Asp Gln Thr Asp Glu Gly Gly Ser  
 675 680 685  
 Val Pro Val Ile Ile Ser Thr Ser Arg Val Ser Ala Pro Ser Thr Arg  
 690 695 700  
 Leu Gly Pro Val Pro Gly Cys Arg Leu Leu  
 705 710

<210> 21  
 <211> 2985  
 <212> DNA  
 <213> homo sapiens

<400> 21  
 atgctgcgca ccgcatgggg cctgaggagc tggctcgccg ccccatgggg cgcgctgccg 60  
 cctcgggccac cgctgctgct gctcctgctg ctgctgctcc tgctgcagcc gccgcctccg 120  
 acctggggcg tcagcccccg gatcagcctg cctctgggct ctgaagagcg gccattcctc 180  
 agattcgaag ctgaacacat ctccaactac acagcccttc tgctgagcag ggatggcagg 240  
 accctgtacg tgggtgctcg agaggccctc tttgcactca gtagcaacct cagcttcctg 300  
 ccaggcgggg agtaccagga gctgctttgg ggtgcagacg cagagaagaa acagcagtgc 360  
 agcttcaagg gcaaggaccc acagcgcgac tgtcaaaact acatcaagat cctcctgccg 420  
 ctcagcggca gtcacctgtt cacctgtggc acagcagcct tcagccccat gtgtacctac 480  
 atcaacatgg agaacttcac cctggcaagg gacgagaagg ggaatgtcct cctggaagat 540  
 ggcaagggcc gttgtccctt cgaccogaat ttcaagtcca ctgccctggg ggttgatggc 600  
 gagctctaca ctggaacagt cagcagcttc caagggaatg acccgcccat ctcgcgaggc 660  
 caaagccttc gccccaccaa gaccgagagc tccctcaact ggctgcaaga cccagctttt 720  
 gtggcctcag cctacattcc tgagagcctg ggcagcttgc aaggcgatga tgacaagatc 780  
 tactttttct tcagcgagac tggccaggaa tttgagttct ttgagaacac cattgtgtcc 840  
 cgcattgccc gcatctgcaa gggcgatgag ggtggagagc ggtgctaca gcagcgctgg 900  
 acctccttc tcaaggccca gctgctgtgc tcacggcccg acgatggctt ccccttcaac 960  
 gtgctgcagg atgtcttcac gctgagcccc agccccagg actggcgtga cacccttttc 1020  
 tatggggctc tcaattccca gtggcacagg ggaactacag aaggctctgc cgtctgtgtc 1080  
 ttcacaatga aggatgtgca gagagtcttc agcggcctct acaaggaggt gaaccgtgag 1140  
 acacagcagt ggtacaccgt gacccaccog gtgcccacac cccggcctgg agcgtgcata 1200  
 accaacagt cccgggaaag gaagatcaac tcatccctgc agctcccaga ccgcgtgctg 1260  
 aacttcctca aggaccactt cctgatggac gggcaggtcc gaagccgcat gctgctgctg 1320  
 cageccccagg ctgctacca gcgcgtggct gtacaccgag tccctggcct gcaccacacc 1380  
 tacgatgtcc tcttctctgg cactggtgac ggcgggctcc acaaggcagt gagcgtgggc 1440  
 ccccggtgac acatcattga ggagctgcag atcttctcat cgggacagcc cgtgcagaat 1500  
 ctgctcctgg acaccacag ggggctgctg tatgcggcct cacactcggg cgtagtccag 1560  
 gtgccccatg ccaactgcag cctgtacagg agctgtgggg actgcctcct cgcgggggac 1620  
 cctactgtg cttggagcgg ctccagctgc aagcacgtca gcctctacca gcctcagctg 1680  
 gccaccaggc cgtggatcca ggacatcgag ggagccagcg ccaaggacct ttgcagcgcg 1740  
 tcttcggttg tgtccccgtc ttttgtacca acaggggaga agccatgtga gcaagtccag 1800  
 ttccagccca acacagtga cactttggcc tgcccgtccc tctccaacct ggcgacccga 1860  
 ctctggctac gcaacggggc ccccgtaaat gcctcggcct cctgccacgt gctacccact 1920  
 ggggacctgc tgctggtggg caccacaacag ctgggggagt tccagtgtg gtactagag 1980  
 gagggcttcc agcagctggt agccagctac tgcccagagg tgggtggagga cggggtggca 2040  
 gaccaaacag atacggtgcc cacacccccg cctggagcgt gcatcaccaa cagtgcgccg 2100

gaaaggaaga	tcaactcatt	cctgcagctc	ccagaccgag	tgctgaactt	cctcaaggac	2160
cacttcctga	tggaacgggc	gggtccgaag	cgcattgctg	tgctgcagcc	ccaggctcgc	2220
taccagcgcg	tggtgtgata	ccgcgtccct	ggcctgcacc	acacctacga	tgctcctctc	2280
ctggggactg	gtgacggccg	gctccacaag	gcagtgcagc	tggtggcccg	gggtgcacat	2340
attgaggagc	tgcatatctt	ctcatcgga	cagcccgtag	agaatctgct	cctggacacc	2400
cacagggggc	tgctgtatgc	ggcctcacac	tcgggcgtag	tccaggtagc	catggccaac	2460
tgacgctgt	acaggagctg	tggtgactgc	ctcctcgccc	gggacccta	ctgtgcttgg	2520
agcggctcca	gctgcaagca	cgtagcctc	taccagcctc	agctggccac	caggccgtgg	2580
atccaggaca	tcgagggagc	cagcgccaag	gacctttgca	gcgcgtcttc	ggttgtgtcc	2640
ccgtcttttg	taccaacagg	ggagaagcca	tgtgagcaag	tccagttcca	gccaacaca	2700
gtgaacactt	tggtctgccc	gctcctctcc	aacctggcga	cccactctg	gctacgcaac	2760
ggggccccc	tcaatgcctc	ggcctcctgc	cacgtgctac	ccactgggga	cctgctgctg	2820
gtgggactg	gagtagcacc	ttccacgacc	aggagaggca	ctggggaggg	gtcacaggga	2880
tgccaccgag	gcagacctga	ggaagagatg	gaggtggacg	tgtagcacc	cggctggggc	2940
ctgtccctgg	atgcaggcta	ctctagggca	cctgtcccg	cttga		2985

<210> 22

<211> 994

<212> PRT

<213> homo sapiens

<400> 22

Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp	Leu	Ala	Ala	Pro	Trp
1				5					10					15	
Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu
			20					25					30		
Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala	Leu	Ser	Pro	Arg	Ile
		35					40					45			
Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe	Leu	Arg	Phe	Glu	Ala
	50					55					60				
Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu	Ser	Arg	Asp	Gly	Arg
65					70					75					80
Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe	Ala	Leu	Ser	Ser	Asn
				85				90						95	
Leu	Ser	Phe	Leu	Pro	Gly	Gly	Glu	Tyr	Gln	Glu	Leu	Leu	Trp	Gly	Ala
		100						105					110		
Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys	Gly	Lys	Asp	Pro	Gln
	115						120					125			
Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu	Pro	Leu	Ser	Gly	Ser
	130					135						140			
His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser	Pro	Met	Cys	Thr	Tyr
145				150						155					160
Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp	Glu	Lys	Gly	Asn	Val
			165					170						175	
Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe	Asp	Pro	Asn	Phe	Lys
		180						185					190		
Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr	Thr	Gly	Thr	Val	Ser
	195						200					205			
Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg	Ser	Gln	Ser	Leu	Arg
	210					215						220			
Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu	Gln	Asp	Pro	Ala	Phe
225				230						235					240
Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly	Ser	Leu	Gln	Gly	Asp
			245						250					255	
Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr	Gly	Gln	Glu	Phe	Glu
		260						265					270		

Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala	Arg	Ile	Cys	Lys	Gly	275	280	285
Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg	Trp	Thr	Ser	Phe	Leu	290	295	300
Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp	Gly	Phe	Pro	Phe	Asn	305	310	315
Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser	Pro	Gln	Asp	Trp	Arg	325	330	335
Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln	Trp	His	Arg	Gly	Thr	340	345	350
Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met	Lys	Asp	Val	Gln	Arg	355	360	365
Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg	Glu	Thr	Gln	Gln	Trp	370	375	380
Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile	385	390	395
Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro	405	410	415
Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln	420	425	430
Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg	435	440	445
Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His	Thr	Tyr	Asp	Val	Leu	450	455	460
Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys	Ala	Val	Ser	Val	Gly	465	470	475
Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile	Phe	Ser	Ser	Gly	Gln	485	490	495
Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg	Gly	Leu	Leu	Tyr	Ala	500	505	510
Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	Ala	Asn	Cys	Ser	Leu	515	520	525
Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Ala	530	535	540
Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	Tyr	Gln	Pro	Gln	Leu	545	550	555
Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	Ala	Ser	Ala	Lys	Asp	565	570	575
Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	Phe	Val	Pro	Thr	Gly	580	585	590
Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro	Asn	Thr	Val	Asn	Thr	595	600	605
Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr	Arg	Leu	Trp	Leu	Arg	610	615	620
Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys	His	Val	Leu	Pro	Thr	625	630	635
Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu	Gly	Glu	Phe	Gln	Cys	645	650	655
Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val	Ala	Ser	Tyr	Cys	Pro	660	665	670
Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr	Asp	Thr	Val	Pro	Thr	675	680	685
Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	690	695	700
Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	705	710	715
																		720

His	Phe	Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	
				725					730						735	
Pro	Gln	Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	
				740				745					750			
His	His	Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	
		755					760					765				
His	Lys	Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	
	770					775					780					
Gln	Ile	Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	
785					790					795					800	
His	Arg	Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	
				805				810						815		
Pro	Met	Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	
			820					825				830				
Ala	Arg	Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	
		835					840					845				
Ser	Leu	Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	
	850					855					860					
Glu	Gly	Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	
865					870					875					880	
Pro	Ser	Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	
				885					890					895		
Gln	Pro	Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	
		900						905					910			
Ala	Thr	Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	
		915					920					925				
Ser	Cys	His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gly	
	930					935					940					
Val	Ala	Pro	Ser	Thr	Thr	Arg	Arg	Gly	Thr	Gly	Glu	Gly	Ser	Gln	Gly	
945					950					955					960	
Cys	His	Pro	Gly	Arg	Pro	Glu	Glu	Glu	Met	Glu	Val	Asp	Val	Ser	Ala	
				965				970						975		
Pro	Gly	Trp	Gly	Leu	Ser	Leu	Asp	Ala	Gly	Tyr	Ser	Arg	Ala	Pro	Val	
		980						985					990			
Pro	Pro															

<210> 23

<211> 3030

<212> DNA

<213> homo sapiens

<400> 23

atgctgcgca	cgcgatggg	cctgaggagc	tggctcgccg	cccatgggg	cgcgctgccg	60
cctcgccac	cgctgctgct	gctcctgctg	ctgctgctcc	tgctgcagcc	gccgcctccg	120
acctggggcg	tcagcccccg	gatcagcctg	cctctgggct	ctgaagagcg	gccattcctc	180
agattcgaag	ctgaacacat	ctccaactac	acagcccttc	tgctgagcag	ggatggcagg	240
accctgtacg	tgggtgctcg	agaggccctc	tttgactca	gtagcaacct	cagcttcctg	300
ccaggcgggg	agtaccagga	gctgcttttg	ggtgcagacg	cagagaagaa	acagcagtgc	360
agcttcaagg	gcaaggaccc	acagcgcgac	tgtcaaaact	acatcaagat	cctcctgccg	420
ctcagcggca	gtcacctggt	cacctgtggc	acagcagcct	tcagccccat	gtgtacctac	480
atcaacatgg	agaacttcac	cctggcaagg	gacgagaagg	ggaatgtcct	cctggaagat	540
ggcaagggcc	gttgtccctt	cgaccggaat	ttcaagtcca	ctgccctggg	ggttgatggc	600
gagctctaca	ctggaacagt	cagcagcttc	caaggggaatg	acccggccat	ctcgcgagac	660
caaagccttc	gccccaccaa	gaccgagagc	tcctcaact	ggctgcaaga	cccagctttt	720
gtggcctcag	cctacattcc	tgagagcctg	ggcagcttgc	aaggcgatga	tgacaagatc	780

<210> 24

<211> 1009

<212> PRT

<213> homo sapiens

<400> 24

Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp	Leu	Ala	Ala	Pro	Trp
1				5					10					15	
Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu
			20					25					30		
Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala	Leu	Ser	Pro	Arg	Ile
		35					40					45			
Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe	Leu	Arg	Phe	Glu	Ala
	50					55					60				
Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu	Ser	Arg	Asp	Gly	Arg
65					70					75					80
Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe	Ala	Leu	Ser	Ser	Asn

										90					95				
Leu	Ser	Phe	Leu	Pro	Gly	Gly	Glu	Tyr	Gln	Glu	Leu	Leu	Trp	Gly	Ala				
			100					105					110						
Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys	Gly	Lys	Asp	Pro	Gln				
			115				120					125							
Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu	Pro	Leu	Ser	Gly	Ser				
			130			135					140								
His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser	Pro	Met	Cys	Thr	Tyr				
145					150					155					160				
Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp	Glu	Lys	Gly	Asn	Val				
				165					170					175					
Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe	Asp	Pro	Asn	Phe	Lys				
			180				185						190						
Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr	Thr	Gly	Thr	Val	Ser				
			195			200						205							
Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg	Ser	Gln	Ser	Leu	Arg				
			210			215					220								
Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu	Gln	Asp	Pro	Ala	Phe				
225					230					235					240				
Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly	Ser	Leu	Gln	Gly	Asp				
				245					250					255					
Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr	Gly	Gln	Glu	Phe	Glu				
			260				265						270						
Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala	Arg	Ile	Cys	Lys	Gly				
			275				280					285							
Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg	Trp	Thr	Ser	Phe	Leu				
			290			295					300								
Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp	Gly	Phe	Pro	Phe	Asn				
305					310					315					320				
Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser	Pro	Gln	Asp	Trp	Arg				
				325					330					335					
Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln	Trp	His	Arg	Gly	Thr				
			340				345						350						
Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met	Lys	Asp	Val	Gln	Arg				
			355				360					365							
Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg	Glu	Thr	Gln	Gln	Trp				
			370			375					380								
Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile				
385					390					395					400				
Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro				
				405					410					415					
Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln				
			420					425					430						
Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg				

530					535				540						
Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	Tyr	Gln	Pro	Gln	Leu
545					550					555					560
Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	Ala	Ser	Ala	Lys	Asp
				565					570						575
Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	Phe	Val	Pro	Thr	Gly
			580					585					590		
Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro	Asn	Thr	Val	Asn	Thr
		595					600					605			
Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr	Arg	Leu	Trp	Leu	Arg
	610					615					620				
Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys	His	Val	Leu	Pro	Thr
625					630					635					640
Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu	Gly	Glu	Phe	Gln	Cys
				645					650						655
Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val	Ala	Ser	Tyr	Cys	Pro
			660					665					670		
Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr	Asp	Thr	Val	Pro	Thr
		675					680					685			
Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile
	690					695					700				
Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp
705					710					715					720
His	Phe	Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln
			725						730						735
Pro	Gln	Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu
			740					745					750		
His	His	Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu
		755					760					765			
His	Lys	Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu
	770					775					780				
Gln	Ile	Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr
785					790					795					800
His	Arg	Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val
				805					810						815
Pro	Met	Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu
			820					825					830		
Ala	Arg	Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val
		835					840					845			
Ser	Leu	Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile
	850					855					860				
Glu	Gly	Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser
865					870					875					880
Pro	Ser	Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe
				885					890						895
Gln	Pro	Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu
			900					905					910		
Ala	Thr	Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala
		915					920					925			
Ser	Cys	His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln
	930					935					940				
Gln	Leu	Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln
945					950					955					960
Leu	Val	Ala	Ser	Tyr	Cys	Pro	Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asn
				965					970						975
Gln	Thr	Asp	Glu	Gly	Gly	Ser	Val	Pro	Val	Ile	Ile	Ser	Thr	Ser	Arg



980 985 990  
 Val Ser Ala Pro Ser Thr Arg Leu Gly Pro Val Pro Gly Cys Arg Leu  
 995 1000 1005  
 Leu

<210> 25  
 <211> 2358  
 <212> DNA  
 <213> homo sapiens

<400> 25  
 atgctgcgca cgcgatggg cctgaggagc tggctcgcgc ccccatgggg cgcgctgcgc 60  
 cctcggccac cgctgctgct gctcctgctg ctgctgctcc tgctgcagcc gccgcctccg 120  
 acctgggcgc tcagcccccg gatcagcctg cctctgggct ctgaagagcg gccattcctc 180  
 agattcgaag ctgaacacat ctccaactac acagcccttc tgctgagcag ggatggcagg 240  
 accctgtacg tgggtgctcg agaggccctc tttgcaacta gtagcaacct cagcttcctg 300  
 ccaggcgggg agtaccagga gctgcttttg ggtgcagacg cagagaagaa acagcagtgc 360  
 agcttcaagg gcaaggaccc acagcgcgac tgtcaaaact acatcaagat cctcctgccg 420  
 ctacgcggca gtcacctgtt cacctgtggc acagcagcct tcagccccat gtgtacctac 480  
 atcaacatgg agaacttcac cctggcaagg gacgagaagg ggaatgtcct cctggaagat 540  
 ggcaaggggc gttgtccctt cgacccgaat ttcaagtcca ctgccctggt ggttgatggc 600  
 gagctctaca ctggaacagt cagcagcttc caagggaatg acccggccat ctgcgagagc 660  
 caaagccttc gccccaccaa gaccgagagc tccctcaact ggctgcaaga cccagctttt 720  
 gtggcctcag cctacattcc tgagagcctg ggcagcttgc aaggcgatga tgacaagatc 780  
 tactttttct tcagcgagac tggccaggaa tttgagttct ttgagaacac catttgtgtcc 840  
 cgcattgccc gcatctgcaa gggcgatgag ggtggagagc ggggtgctaca gcagcgctgg 900  
 acctccttcc tcaaggccca gctgctgtgc tcacggcccg acgatggctt ccccttcaac 960  
 gtgctgcagg atgtcttcac gctgagcccc agcccccagg actggcgtga cacccttttc 1020  
 tatggggtct tcaacttcca gtggcacagg ggaactacag aaggctctgc cgtctgtgtc 1080  
 ttacacatga aggatgtgca gagagtcttc agcggcctct acaaggaggt gaaccgtgag 1140  
 acacagcagt ggtacaccgt gacccacccg gtgccacac cccggcctgg agcgtgcate 1200  
 accaacagtg cccgggaaag gaagatcaac tcatccctgc agctcccaga ccgctgctg 1260  
 aacttcctca aggaccactt cctgatggac gggcaggctc gaagccgcat gctgctgctg 1320  
 cagccccagg ctgcctacca gcgcgtggct gtacaccgcg tccctggcct gcaccacacc 1380  
 tacgatgtcc tcttctctgg cactggtgac ggccggctcc acaaggcagt gagcgtgggc 1440  
 ccccggtgac acatcattga ggagctgcag atcttctcat cgggacagcc cgtgcagaat 1500  
 ctgctcctgg acaccacag ggggctgctg tatgcgccct cactctcggg cgtagtccag 1560  
 gtgcccatgg ccaactgcag cctgtacagg agctgtgggg actgctcct cgccggggac 1620  
 ccctactgtg cttggagcgg ctccagctgc aagcacgtca gcctctacca gcctcagctg 1680  
 gccaccaggc cgtggatcca ggacatcgag ggagccagcg ccaaggacct ttgcagcgcg 1740  
 tcttcggttg tgtccccgtc tttgtacca acaggggaga agccatgtga gcaagtccag 1800  
 ttccagccca acacagtga cactttggcc tgcccgtcc tctccaacct ggcgacccga 1860  
 ctctggctac gcaacggggc ccccgctaat gcctcgccct cctgccacgt gctaccact 1920  
 ggggacctgc tgctggtggg caccacacag ctgggggagt tccagtgtg gtcactagag 1980  
 gagggcttcc agcagctggg agccagctac tgcccagagg tgggtggagga cggggtggca 2040  
 gaccaaacag atgagggtgg cagtgtaccc gtcattatca gcacatcgcg tgtgagtgca 2100  
 ccagctggtg gcaaggccag ctggggtgca gacaggtcct actggaagga gttcctggtg 2160  
 atgtgcacgc tctttgtgct ggccgtgctg ctcccagttt tattcttgct ctaccggcac 2220  
 cggaacagca tgaaagtctt cctgaagcag ggggaatgtg ccagcgtgca ccccaagacc 2280  
 tgccctgtgg tgctgcccc tgagacccgc cctcggtttc accgtcaccg ccgacgtcga 2340  
 ggtgactcaa cggcctag

<210> 26  
 <211> 785  
 <212> PRT

<213> homo sapiens

<400> 26

Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp Leu Ala Ala Pro Trp  
1 5 10 15  
Gly Ala Leu Pro Pro Arg Pro Pro Leu Leu Leu Leu Leu Leu  
20 25 30  
Leu Leu Leu Gln Pro Pro Pro Pro Thr Trp Ala Leu Ser Pro Arg Ile  
35 40 45  
Ser Leu Pro Leu Gly Ser Glu Glu Arg Pro Phe Leu Arg Phe Glu Ala  
50 55 60  
Glu His Ile Ser Asn Tyr Thr Ala Leu Leu Leu Ser Arg Asp Gly Arg  
65 70 75 80  
Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe Ala Leu Ser Ser Asn  
85 90 95  
Leu Ser Phe Leu Pro Gly Gly Glu Tyr Gln Glu Leu Leu Trp Gly Ala  
100 105 110  
Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys Gly Lys Asp Pro Gln  
115 120 125  
Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu Pro Leu Ser Gly Ser  
130 135 140  
His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser Pro Met Cys Thr Tyr  
145 150 155 160  
Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp Glu Lys Gly Asn Val  
165 170 175  
Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe Asp Pro Asn Phe Lys  
180 185 190  
Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr Thr Gly Thr Val Ser  
195 200 205  
Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg Ser Gln Ser Leu Arg  
210 215 220  
Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu Gln Asp Pro Ala Phe  
225 230 235 240  
Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly Ser Leu Gln Gly Asp  
245 250 255  
Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr Gly Gln Glu Phe Glu  
260 265 270  
Phe Phe Glu Asn Thr Ile Val Ser Arg Ile Ala Arg Ile Cys Lys Gly  
275 280 285  
Asp Glu Gly Gly Glu Arg Val Leu Gln Gln Arg Trp Thr Ser Phe Leu  
290 295 300  
Lys Ala Gln Leu Leu Cys Ser Arg Pro Asp Asp Gly Phe Pro Phe Asn  
305 310 315 320  
Val Leu Gln Asp Val Phe Thr Leu Ser Pro Ser Pro Gln Asp Trp Arg  
325 330 335  
Asp Thr Leu Phe Tyr Gly Val Phe Thr Ser Gln Trp His Arg Gly Thr  
340 345 350  
Thr Glu Gly Ser Ala Val Cys Val Phe Thr Met Lys Asp Val Gln Arg  
355 360 365  
Val Phe Ser Gly Leu Tyr Lys Glu Val Asn Arg Glu Thr Gln Gln Trp  
370 375 380  
Tyr Thr Val Thr His Pro Val Pro Thr Pro Arg Pro Gly Ala Cys Ile  
385 390 395 400  
Thr Asn Ser Ala Arg Glu Arg Lys Ile Asn Ser Ser Leu Gln Leu Pro  
405 410 415  
Asp Arg Val Leu Asn Phe Leu Lys Asp His Phe Leu Met Asp Gly Gln

	420		425		430
Val Arg Ser Arg Met Leu Leu Leu Gln Pro Gln Ala Arg Tyr Gln Arg					
435		440		445	
Val Ala Val His Arg Val Pro Gly Leu His His Thr Tyr Asp Val Leu					
450		455		460	
Phe Leu Gly Thr Gly Asp Gly Arg Leu His Lys Ala Val Ser Val Gly					
465		470		475	480
Pro Arg Val His Ile Ile Glu Glu Leu Gln Ile Phe Ser Ser Gly Gln					
	485		490		495
Pro Val Gln Asn Leu Leu Leu Asp Thr His Arg Gly Leu Leu Tyr Ala					
	500		505		510
Ala Ser His Ser Gly Val Val Gln Val Pro Met Ala Asn Cys Ser Leu					
	515		520		525
Tyr Arg Ser Cys Gly Asp Cys Leu Leu Ala Arg Asp Pro Tyr Cys Ala					
	530		535		540
Trp Ser Gly Ser Ser Cys Lys His Val Ser Leu Tyr Gln Pro Gln Leu					
545		550		555	560
Ala Thr Arg Pro Trp Ile Gln Asp Ile Glu Gly Ala Ser Ala Lys Asp					
	565		570		575
Leu Cys Ser Ala Ser Ser Val Val Ser Pro Ser Phe Val Pro Thr Gly					
	580		585		590
Glu Lys Pro Cys Glu Gln Val Gln Phe Gln Pro Asn Thr Val Asn Thr					
	595		600		605
Leu Ala Cys Pro Leu Leu Ser Asn Leu Ala Thr Arg Leu Trp Leu Arg					
	610		615		620
Asn Gly Ala Pro Val Asn Ala Ser Ala Ser Cys His Val Leu Pro Thr					
625		630		635	640
Gly Asp Leu Leu Leu Val Gly Thr Gln Gln Leu Gly Glu Phe Gln Cys					
	645		650		655
Trp Ser Leu Glu Glu Gly Phe Gln Gln Leu Val Ala Ser Tyr Cys Pro					
	660		665		670
Glu Val Val Glu Asp Gly Val Ala Asp Gln Thr Asp Glu Gly Gly Ser					
	675		680		685
Val Pro Val Ile Ile Ser Thr Ser Arg Val Ser Ala Pro Ala Gly Gly					
	690		695		700
Lys Ala Ser Trp Gly Ala Asp Arg Ser Tyr Trp Lys Glu Phe Leu Val					
705		710		715	720
Met Cys Thr Leu Phe Val Leu Ala Val Leu Leu Pro Val Leu Phe Leu					
	725		730		735
Leu Tyr Arg His Arg Asn Ser Met Lys Val Phe Leu Lys Gln Gly Glu					
	740		745		750
Cys Ala Ser Val His Pro Lys Thr Cys Pro Val Val Leu Pro Pro Glu					
	755		760		765
Thr Arg Pro Arg Phe His Arg His Arg Arg Arg Arg Gly Asp Ser Thr					
	770		775		780
Ala					
785					

<210> 27

<211> 3294

<212> DNA

<213> homo sapiens

<400> 27

atgctgcgca ccgcgatggg cctgaggagc tggctcgccg ccccatgggg cgcgctgccg  
cctcgccac cgctgctgct gctcctgctg ctgctgctcc tgctgcagcc gccgcctccg

60  
120

acctgggagc	tcagcccccg	gatcagcctg	cctctgggct	ctgaagagcg	gccattcctc	180
agattcgaag	ctgaacacat	ctccaactac	acagcccttc	tgctgagcag	ggatggcagg	240
accctgtacg	tgggtgctcg	agaggccctc	tttgactca	gtagcaacct	cagcttcctg	300
ccaggcgggg	agtaccagga	gctgcttttg	ggtgcagacg	cagagaagaa	acagcagtgc	360
agcttcaagg	gcaaggaccc	acagcgcgac	tgtcaaaact	acatcaagat	cctcctgccg	420
ctcagcgga	gtcacctgtt	cacctgtggc	acagcagcct	tcagcccat	gtgtacctac	480
atcaacatgg	agaacttcac	cctggcaagg	gacgagaagg	ggaatgtcct	cctggaagat	540
ggcaaggggc	gttgtccctt	cgacccgaat	ttcaagtcca	ctgccctggt	ggttgatggc	600
gagctctaca	ctggaacagt	cagcagcttc	caagggaatg	acccggccat	ctcgcggagc	660
caaagccttc	gccccaccaa	gaccgagagc	tccctcaact	ggctgcaaga	cccagctttt	720
gtggcctcag	cctacatttc	tgagagcctg	ggcagcttgc	aaggcgatga	tgacaagatc	780
tactttttct	tcagcgagac	tggccaggaa	tttgagtctt	ttgagaacac	cattgtgtcc	840
cgcattgccc	gcatctgcaa	ggcgatgag	ggtggagagc	gggtgctaca	gcagcgctgg	900
acctccttcc	tcaaggccca	gctgctgtgc	tcacggcccc	acgatggctt	ccccctcaac	960
gtgctgcagg	atgtcttcac	gctgagcccc	agcccccagg	actggcgtga	cacctttttc	1020
tatggggtct	tcacttccca	gtggcacagg	ggaactacag	aaggctctgc	cgtctgtgtc	1080
ttcacaatga	aggatgtgca	gagagtcttc	agcggcctct	acaaggaggt	gaaccgtgag	1140
acacagcagt	ggtacaccgt	gacccacccg	gtgcccacac	cccgccctgg	agcgtgcatc	1200
accaacagtg	cccgggaaag	gaagatcaac	tcattccctg	agctcccaga	ccgcgtgctg	1260
aacttctca	aggaccactt	cctgatggac	gggcaggctc	gaagccgcat	gctgctgctg	1320
cagccccagg	ctcgtacca	gcgcgtggct	gtacaccgcg	tccctggcct	gcaccacacc	1380
tacgatgtcc	tcttctctgg	cactggtgac	ggccggctcc	acaaggcagt	gagcgtgggc	1440
ccccgggtgc	acatcattga	ggagctgcag	atcttctcat	cgggacagcc	cgtgcagaat	1500
ctgctcctgg	acacccacag	gggctgctg	tatgcggcct	cacactcggg	cgtagtccag	1560
gtgcccctgg	ccaactgcag	cctgtacagg	agctgtgggg	actgcctcct	cgcccgggac	1620
ccctactgtg	cttgagcgg	ctccagctgc	aagcacgtca	gcctctacca	gcctcagctg	1680
gccaccaggc	cgtggatcca	ggacatcgag	ggagccagcg	ccaaggacct	ttgcagcgcg	1740
tcttcgggtg	tgtccccgtc	ttttgtacca	acaggggaga	agccatgtga	gcaagtccag	1800
ttccagccca	acacagtga	cactttggcc	tgcccgtccc	tctccaacct	ggcgaccaga	1860
ctctggctac	gcaacggggc	ccccgtcaat	gcctcggcct	cctgccacgt	gctacccact	1920
ggggacctgc	tgctggtggg	cacccaacag	ctgggggagt	tccagtgtctg	gtcactagag	1980
gagggcttcc	agcagctggg	agccagctac	tgcccagagg	tgggtggagg	cggggtggca	2040
gaccaaacag	atagcgtgcc	cacaccccg	cctggagcgt	gcatcaccaa	cagtgtcccgg	2100
gaaaggaaga	tcaactcatc	cctgcagctc	ccagaccgcg	tgctgaactt	cctcaaggac	2160
cacttctga	tggacgggca	ggtccgaagc	cgcatgctgc	tgctgcagcc	ccaggtctgc	2220
taccagcgcg	tggctgtaca	ccgcgtccct	ggcctgcacc	acacctacga	tgtcctcttc	2280
ctgggcactg	gtgacggccg	gctccacaag	gcagtgcagc	tggggccccg	ggtgcacatc	2340
attgaggagc	tgagatctt	ctcatcgga	cagcccgtgc	agaatctgct	cctggacacc	2400
cacagggggc	tgctgtatgc	ggcctcacac	tcgggcgtag	tccaggtgcc	catggccaac	2460
tgcagcctgt	acaggagctg	tggggactgc	ctcctcgccc	gggacccta	ctgtgcttgg	2520
agcggctcca	gctgcaagca	cgtcagcctc	taccagcctc	agctggccac	caggccgtgg	2580
atccaggaca	tcgagggagc	cagcgccaag	gacctttgca	gcgcgtcttc	ggttgtgtcc	2640
ccgtcttttg	taccaacagg	ggagaagcca	tgtgagcaag	tccagtcca	gccccacaca	2700
gtgaacactt	tggcctgccc	gctcctctcc	aacctggcga	cccgaactctg	gtacgcaac	2760
ggggcccccg	tcaatgcctc	ggcctcctgc	cacgtgctac	ccactgggga	cctgctgctg	2820
gtgggcaccc	aacagctggg	ggagtccag	tgctggtcac	tagaggaggg	cttccagcag	2880
ctggtagcca	gctactgccc	agaggtggtg	gaggacgggg	tggcaaacca	aacagatgag	2940
ggtggcagtg	taccogtcat	tatcagcaca	tcgcgtgtga	gtgcaccagc	tgggtggcaag	3000
gccagctggg	gtgcagacag	gtcctactgg	aaggagttcc	tgggtgatgtg	cacgctcttt	3060
gtgctggccg	tgtgtctccc	agttttattc	ttgctctacc	ggcaccggaa	cagcatgaaa	3120
gtcttctga	agcaggggga	atgtgcccag	gtgcacccca	agacctgccc	tgtggtgctg	3180
ccccctgaga	cccgccctcg	gtttcacctg	caccgcgcag	gtcgaggtgc	ccgaaggacc	3240
gcgcacctgg	tgcattgacc	gcaagcccg	tgctggaagc	ggatccagac	atga	3294

<210> 28

<211> 1097

<212> PRT  
 <213> homo sapiens

<400> 28

Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp	Leu	Ala	Ala	Pro	Trp
1				5					10					15	
Gly	Ala	Leu	Pro	Arg	Pro	Pro	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu
			20				25					30			
Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala	Leu	Ser	Pro	Arg	Ile
		35					40					45			
Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe	Leu	Arg	Phe	Glu	Ala
	50					55					60				
Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu	Ser	Arg	Asp	Gly	Arg
65					70					75					80
Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe	Ala	Leu	Ser	Ser	Asn
				85					90					95	
Leu	Ser	Phe	Leu	Pro	Gly	Gly	Glu	Tyr	Gln	Glu	Leu	Leu	Trp	Gly	Ala
			100					105					110		
Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys	Gly	Lys	Asp	Pro	Gln
		115					120					125			
Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu	Pro	Leu	Ser	Gly	Ser
	130					135						140			
His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser	Pro	Met	Cys	Thr	Tyr
145					150					155					160
Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp	Glu	Lys	Gly	Asn	Val
				165					170					175	
Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe	Asp	Pro	Asn	Phe	Lys
			180					185					190		
Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr	Thr	Gly	Thr	Val	Ser
		195					200					205			
Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg	Ser	Gln	Ser	Leu	Arg
	210					215						220			
Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu	Gln	Asp	Pro	Ala	Phe
225					230					235					240
Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly	Ser	Leu	Gln	Gly	Asp
				245					250					255	
Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr	Gly	Gln	Glu	Phe	Glu
			260					265					270		
Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala	Arg	Ile	Cys	Lys	Gly
		275					280					285			
Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg	Trp	Thr	Ser	Phe	Leu
	290					295					300				
Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp	Gly	Phe	Pro	Phe	Asn
305					310					315					320
Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser	Pro	Gln	Asp	Trp	Arg
				325					330					335	
Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln	Trp	His	Arg	Gly	Thr
			340					345					350		
Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met	Lys	Asp	Val	Gln	Arg
		355					360					365			
Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg	Glu	Thr	Gln	Gln	Trp
	370					375					380				
Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile
385					390					395					400
Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro
				405					410					415	

Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln
			420					425					430		
Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg
		435					440					445			
Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His	Thr	Tyr	Asp	Val	Leu
		450				455					460				
Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys	Ala	Val	Ser	Val	Gly
465					470					475					480
Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile	Phe	Ser	Ser	Gly	Gln
				485					490					495	
Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg	Gly	Leu	Leu	Tyr	Ala
			500					505					510		
Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	Ala	Asn	Cys	Ser	Leu
		515					520					525			
Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Ala
	530					535					540				
Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	Tyr	Gln	Pro	Gln	Leu
545					550						555				560
Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	Ala	Ser	Ala	Lys	Asp
				565					570					575	
Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	Phe	Val	Pro	Thr	Gly
			580					585					590		
Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro	Asn	Thr	Val	Asn	Thr
		595					600					605			
Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr	Arg	Leu	Trp	Leu	Arg
	610					615					620				
Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys	His	Val	Leu	Pro	Thr
625					630					635					640
Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu	Gly	Glu	Phe	Gln	Cys
				645					650					655	
Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val	Ala	Ser	Tyr	Cys	Pro
			660					665					670		
Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr	Asp	Thr	Val	Pro	Thr
		675					680					685			
Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile
	690					695					700				
Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp
705					710					715					720
His	Phe	Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln
				725					730					735	
Pro	Gln	Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu
			740					745					750		
His	His	Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu
		755					760					765			
His	Lys														

Glu Gly Ala Ser Ala Lys Asp Leu Cys Ser Ala Ser Ser Val Val Ser  
865 870 875 880  
Pro Ser Phe Val Pro Thr Gly Glu Lys Pro Cys Glu Gln Val Gln Phe  
885 890 895  
Gln Pro Asn Thr Val Asn Thr Leu Ala Cys Pro Leu Leu Ser Asn Leu  
900 905 910  
Ala Thr Arg Leu Trp Leu Arg Asn Gly Ala Pro Val Asn Ala Ser Ala  
915 920 925  
Ser Cys His Val Leu Pro Thr Gly Asp Leu Leu Leu Val Gly Thr Gln  
930 935 940  
Gln Leu Gly Glu Phe Gln Cys Trp Ser Leu Glu Glu Gly Phe Gln Gln  
945 950 955 960  
Leu Val Ala Ser Tyr Cys Pro Glu Val Val Glu Asp Gly Val Ala Asn  
965 970 975  
Gln Thr Asp Glu Gly Gly Ser Val Pro Val Ile Ile Ser Thr Ser Arg  
980 985 990  
Val Ser Ala Pro Ala Gly Gly Lys Ala Ser Trp Gly Ala Asp Arg Ser  
995 1000 1005  
Tyr Trp Lys Glu Phe Leu Val Met Cys Thr Leu Phe Val Leu Ala Val  
1010 1015 1020  
Leu Leu Pro Val Leu Phe Leu Leu Tyr Arg His Arg Asn Ser Met Lys  
1025 1030 1035 1040  
Val Phe Leu Lys Gln Gly Glu Cys Ala Ser Val His Pro Lys Thr Cys  
1045 1050 1055  
Pro Val Val Leu Pro Pro Glu Thr Arg Pro Arg Phe His Arg His Arg  
1060 1065 1070  
Arg Arg Arg Gly Ala Arg Arg Thr Ala His Leu Val His Asp Pro Gln  
1075 1080 1085  
Ala Arg Cys Leu Lys Arg Ile Gln Thr  
1090 1095

<210> 29  
<211> 2433  
<212> DNA  
<213> homo sapiens

<400> 29  
atgctgcgca ccgcatgagg cctgaggagc tggctcgccg ccccatgggg cgcgctgccg 60  
cctcggccac cgctgctgct gctcctgctg ctgctgctcc tgctgcagcc gccgcctccg 120  
acctgggccc tcagcccccg gatcagcctg cctctgggct ctgaagagcg gccattcctc 180  
agattcgaag ctgaacacat ctccaactac acagcccttc tgctgagcag ggatggcagg 240  
accctgtacg tgggtgctcg agaggccctc tttgcactca gtagcaacct cagcttcctg 300  
ccaggcgggg agtaccagga gctgctttgg ggtgcagacg cagagaagaa acagcagtgc 360  
agcttcaagg gcaaggaccc acagcgcgac tgtcaaaact acatcaagat cctcctgccg 420  
ctcagcggca gtcacctgtt cacctgtggc acagcagcct tcagccccat gtgtacctac 480  
atcaacatgg agaacttcac cctggcaagg gacgagaagg ggaatgtcct cctggaagat 540  
ggcaagggcc gttgtccctt cgacccgaat ttcaagtcca ctgccctggg ggttgatggc 600  
gagctctaca ctggaacagt cagcagcttc caagggaatg acccggccat ctgcgagcagc 660  
caaagccttc gccccaccaa gaccgagagc tccctcaact ggctgcaaga cccagctttt 720  
gtggcctcag cctacattcc tgagagcctg ggcagcttgc aaggcgatga tgacaagatc 780  
tactttttct tcagcgagac tggccaggaa tttgagttct ttgagaacac catttgttcc 840  
cgcattgccc gcatctgcaa gggcgatgag ggtggagagc ggggtgctaca gcagcgctgg 900  
acctccttcc tcaaggccca gctgctgtgc tcacggcccg acgatggctt ccccttcaac 960  
gtgctgagcgt atgtcttcac gctgagcccc agccccagg actggcgctga cacccttttc 1020  
tatgggggtc tcacttccca gtggcacagg ggaactacag aaggctctgc cgtctgtgtc 1080  
ttcacaatga aggatgtgca gagagtcttc agcggcctct acaaggagggt gaaccgtgag 1140

```

acacagcagt ggtacaccgt gaccaccccg gtgcccacac cccggcctgg agcgtgcatc 1200
accaacagtg cccgggaaag gaagatcaac tcattccctgc agtcccaga ccgctgctg 1260
aacttcctca aggaccattt cctgatggac gggcagggtcc gaagccgcat gctgctgctg 1320
cagccccagg ctgctacca ggcgtggct gtacaccgcg tccctggcct gcaccacacc 1380
tacgatgtcc tcttcctggg cactggtgac ggccgggtcc acaaggcagt gagcgtgggc 1440
ccccgggtgc acatcattga ggagctgcag atcttctcat cgggacagcc cgtgcagaat 1500
ctgctcctgg acaccacag ggggctgctg tatgcggcct cacactcggg cgtagtccag 1560
gtgcccattg ccaactgcag cctgtacagg agctgtgggg actgcctcct cgcccgggac 1620
ccctactgtg cttggagcgg ctccagctgc aagcacgtca gcctctacca gcctcagctg 1680
gccaccaggc cgtggatcca ggacatcgag ggagccagcg ccaaggacct ttgcagcgcg 1740
tcttcggttg tgtccccgtc tttgtacca acaggggaga agccatgtga gcaagtccag 1800
ttccagccca acacagtga cactttggcc tgcccgctcc tctccaacct ggcgaccga 1860
ctctggctac gcaacggggc ccccgtaaat gcctcggcct cctgccacgt gctaccact 1920
ggggacctgc tgctgggtgg caccacacag ctgggggagt tccagtgtg gtcactagag 1980
gagggttcc agcagctggt agccagctac tgcccagagg tgggtggagga cgggtgggca 2040
gaccaaacag atgagggtgg cagtgtaccc gtcattatca gcacatcgcg tgtgagtga 2100
ccagctggtg gcaaggccag ctggggtgca gacaggctct actggaagga gttcctggtg 2160
atgtgcacgc tctttgtgct ggccgtgctg ctcccagttt tattcttgct ctaccggcac 2220
cggaacagca tgaaagtctt cctgaagcag ggggaatgtg ccagcgtgca cccaagacc 2280
tgccctgtgg tgctgcccc tgagaccgc cactcaacg gcctagggcc cctagcacc 2340
ccgctcgatc accgagggtg ccagtcctcc cgaaggaccg cgcacctggt gcatgacccg 2400
caagcccggg gctgaagcg gatccagaca tga 2433

```

<210> 30

<211> 810

<212> PRT

<213> homo sapiens

<400> 30

```

Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp Leu Ala Ala Pro Trp
 1          5          10          15
Gly Ala Leu Pro Pro Arg Pro Pro Leu Leu Leu Leu Leu Leu Leu
          20          25          30
Leu Leu Leu Gln Pro Pro Pro Pro Thr Trp Ala Leu Ser Pro Arg Ile
          35          40          45
Ser Leu Pro Leu Gly Ser Glu Glu Arg Pro Phe Leu Arg Phe Glu Ala
          50          55          60
Glu His Ile Ser Asn Tyr Thr Ala Leu Leu Leu Ser Arg Asp Gly Arg
          65          70          75          80
Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe Ala Leu Ser Ser Asn
          85          90          95
Leu Ser Phe Leu Pro Gly Gly Glu Tyr Gln Glu Leu Leu Trp Gly Ala
          100          105          110
Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys Gly Lys Asp Pro Gln
          115          120          125
Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu Pro Leu Ser Gly Ser
          130          135          140
His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser Pro Met Cys Thr Tyr
          145          150          155          160
Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp Glu Lys Gly Asn Val
          165          170          175
Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe Asp Pro Asn Phe Lys
          180          185          190
Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr Thr Gly Thr Val Ser
          195          200          205
Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg Ser Gln Ser Leu Arg

```



210	215										220							
Pro Thr Lys Thr	Glu Ser Ser Leu Asn Trp	Leu Gln Asp	Pro Ala Phe															
225	230										235						240	
Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly Ser Leu Gln Gly Asp																		
	245										250						255	
Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr Gly Gln Glu Phe Glu																		
	260										265						270	
Phe Phe Glu Asn Thr Ile Val Ser Arg Ile Ala Arg Ile Cys Lys Gly																		
	275										280						285	
Asp Glu Gly Gly Glu Arg Val Leu Gln Gln Arg Trp Thr Ser Phe Leu																		
	290										295						300	
Lys Ala Gln Leu Leu Cys Ser Arg Pro Asp Asp Gly Phe Pro Phe Asn																		
305	310										315						320	
Val Leu Gln Asp Val Phe Thr Leu Ser Pro Ser Pro Gln Asp Trp Arg																		
	325										330						335	
Asp Thr Leu Phe Tyr Gly Val Phe Thr Ser Gln Trp His Arg Gly Thr																		
	340										345						350	
Thr Glu Gly Ser Ala Val Cys Val Phe Thr Met Lys Asp Val Gln Arg																		
	355										360						365	
Val Phe Ser Gly Leu Tyr Lys Glu Val Asn Arg Glu Thr Gln Gln Trp																		
	370										375						380	
Tyr Thr Val Thr His Pro Val Pro Thr Pro Arg Pro Gly Ala Cys Ile																		
385	390										395						400	
Thr Asn Ser Ala Arg Glu Arg Lys Ile Asn Ser Ser Leu Gln Leu Pro																		
	405										410						415	
Asp Arg Val Leu Asn Phe Leu Lys Asp His Phe Leu Met Asp Gly Gln																		
	420										425						430	
Val Arg Ser Arg Met Leu Leu Leu Gln Pro Gln Ala Arg Tyr Gln Arg																		
	435										440						445	
Val Ala Val His Arg Val Pro Gly Leu His His Thr Tyr Asp Val Leu																		
	450										455						460	
Phe Leu Gly Thr Gly Asp Gly Arg Leu His Lys Ala Val Ser Val Gly																		
465	470										475						480	
Pro Arg Val His Ile Ile Glu Glu Leu Gln Ile Phe Ser Ser Gly Gln																		
	485										490						495	
Pro Val Gln Asn Leu Leu Leu Asp Thr His Arg Gly Leu Leu Tyr Ala																		
	500										505						510	
Ala Ser His Ser Gly Val Val Gln Val Pro Met Ala Asn Cys Ser Leu																		
	515										520						525	
Tyr Arg Ser Cys Gly Asp Cys Leu Leu Ala Arg Asp Pro Tyr Cys Ala																		
	530										535						540	
Trp Ser Gly Ser Ser Cys Lys His Val Ser Leu Tyr Gln Pro Gln Leu																		
545	550										555						560	
Ala Thr Arg Pro Trp Ile Gln Asp Ile Glu Gly Ala Ser Ala Lys Asp																		
	565										570						575	
Leu Cys Ser Ala Ser Ser Val Val Ser Pro Ser Phe Val Pro Thr Gly																		
	580										585						590	
Glu Lys Pro Cys Glu Gln Val Gln Phe Gln Pro Asn Thr Val Asn Thr																		
	595										600						605	
Leu Ala Cys Pro Leu Leu Ser Asn Leu Ala Thr Arg Leu Trp Leu Arg																		
	610										615						620	
Asn Gly Ala Pro Val Asn Ala Ser Ala Ser Cys His Val Leu Pro Thr																		
625	630										635						640	
Gly Asp Leu Leu Leu Val Gly Thr Gln Gln Leu Gly Glu Phe Gln Cys																		
	645										650						655	
Trp Ser Leu Glu Glu Gly Phe Gln Gln Leu Val Ala Ser Tyr Cys Pro																		



```

ttccagccca acacagtga cactttggcc tgcccgtcc tctccaacct ggcgaccgca 1860
ctctggctac gcaacggggc ccccgtaaat gcctcggcct cctgccacgt gctaccact 1920
ggggacctgc tgctggtggg caccacaacag ctgggggagt tccagtgtg gtcactagag 1980
gagggcttcc agcagctggt agccagctac tgcccagagg tgggtggagga cggggtggca 2040
gaccaaacag atacggtgcc cacaccccg cctggagcgt gcatcaccaa cagtgcgccg 2100
gaaaggaaga tcaatcatc cctgcagctc ccagaccgcg tgctgaactt cctcaaggac 2160
cacttcctga tggacgggca ggtccgaagc cgcgtgctgc tgctgcagcc ccaggctcgc 2220
taccagcgcg tggctgtaca ccgcgtccct ggcctgcacc acacctacga tgcctcttc 2280
ctgggcactg gtgacggccg gctccacaag gcagtgcgcg tgggcccccg ggtgcacatc 2340
attgaggagc tgcagatctt ctcatcgga cagcccggtc agaattctgt cctggacacc 2400
cacagggggc tgctgtatgc ggcctcacac tcgggcgtag tccaggtgcc catggccaac 2460
tgcagcctgt acaggagctg tggggactgc ctctcgcgcc gggacccta ctgtgcttgg 2520
agcggctcca gctgcaagca cgtcagcctc taccagcctc agctggccac caggccgtgg 2580
atccaggaca tcgagggagc cagcgccaag gacctttgca gcgcgtcttc ggttgtgtcc 2640
ccgtcttttg taccaacagg ggagaagcca tgtgagcaag tccagttcca gcccaacaca 2700
gtgaacactt tggcctgccc gctcctctcc aacctggcga cccgactctg gctacgcaac 2760
ggggcccccg tcaatgcctc ggcctoctgc cagtgctac ccactgggga cctgctgctg 2820
gtgggcaccc aacagctggg ggagttccag tgctggtcac tagaggaggg cttccagcag 2880
ctggtagcca gctactgccc agaggtggtg gaggacgggg tggcaaacca aacagatgag 2940
ggtggcagtg taccgctcat tatcagcaca tcgcgtgtga gtgcaccagc tgggtggcaag 3000
gccagctggg gtgcagacag gtcctactgg aaggagttcc tgggtgatgtg cacgctcttt 3060
gtgctggccg tgctgctccc agttttattc ttgctctacc ggcaccgaa cagcatgaaa 3120
gtcttcctga agcaggggga atgtgccagc gtgcaccaca agacctgccc tgtggtgctg 3180
ccccctgaga cccgcccact caacggccta gggcccccta gcaccccgct cgatcaccca 3240
gggtaccagt ccccccgaag gaccgcgcac ctggtgcatg acccgcaagc ccggtgcctg 3300
aagcggatcc agacatga 3318

```

<210> 32  
 <211> 1105  
 <212> PRT  
 <213> homo sapiens

<400> 32

Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp	Leu	Ala	Ala	Pro	Trp
1				5					10					15	
Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu
			20					25					30		
Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala	Leu	Ser	Pro	Arg	Ile
			35					40					45		
Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe	Leu	Arg	Phe	Glu	Ala
			50					55					60		
Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu	Ser	Arg	Asp	Gly	Arg
					70					75				80	
Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe	Ala	Leu	Ser	Ser	Asn
					85					90				95	
Leu	Ser	Phe	Leu	Pro	Gly	Gly	Glu	Tyr	Gln	Glu	Leu	Leu	Trp	Gly	Ala
				100				105					110		
Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys	Gly	Lys	Asp	Pro	Gln
				115				120					125		
Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu	Pro	Leu	Ser	Gly	Ser
						135					140				
His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser	Pro	Met	Cys	Thr	Tyr
					150					155				160	
Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp	Glu	Lys	Gly	Asn	Val
					165					170				175	
Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe	Asp	Pro	Asn	Phe	Lys

				180						185					190
Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr	Thr	Gly	Thr	Val	Ser
		195					200					205			
Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg	Ser	Gln	Ser	Leu	Arg
	210					215					220				
Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu	Gln	Asp	Pro	Ala	Phe
225					230					235					240
Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly	Ser	Leu	Gln	Gly	Asp
				245					250					255	
Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr	Gly	Gln	Glu	Phe	Glu
			260					265					270		
Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala	Arg	Ile	Cys	Lys	Gly
		275						280				285			
Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg	Trp	Thr	Ser	Phe	Leu
	290					295					300				
Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp	Gly	Phe	Pro	Phe	Asn
305					310					315					320
Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser	Pro	Gln	Asp	Trp	Arg
				325					330					335	
Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln	Trp	His	Arg	Gly	Thr
			340					345					350		
Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met	Lys	Asp	Val	Gln	Arg
		355					360					365			
Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg	Glu	Thr	Gln	Gln	Trp
	370					375					380				
Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile
385					390					395					400
Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro
				405					410					415	
Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln
			420					425					430		
Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg
		435					440					445			
Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His	Thr	Tyr	Asp	Val	Leu
	450					455					460				
Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys	Ala	Val	Ser	Val	Gly
465					470					475					480
Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile	Phe	Ser	Ser	Gly	Gln
				485					490					495	
Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg	Gly	Leu	Leu	Tyr	Ala
			500					505					510		
Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	Ala	Asn	Cys	Ser	Leu
		515					520	</							

625	630										635					640				
Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu	Gly	Glu	Phe	Gln	Cys					
				645					650					655						
Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val	Ala	Ser	Tyr	Cys	Pro					
			660					665					670							
Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr	Asp	Thr	Val	Pro	Thr					
			675					680				685								
Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile					
			690			695					700									
Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp					
705					710					715					720					
His	Phe	Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln					
				725					730					735						
Pro	Gln	Ala	Arg	Tyr	Gln	Arg	Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu					
			740					745					750							
His	His	Thr	Tyr	Asp	Val	Leu	Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu					
		755					760				765									
His	Lys	Ala	Val	Ser	Val	Gly	Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu					
	770					775				780										
Gln	Ile	Phe	Ser	Ser	Gly	Gln	Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr					
785					790					795					800					
His	Arg	Gly	Leu	Leu	Tyr	Ala	Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val					
				805					810					815						
Pro	Met	Ala	Asn	Cys	Ser	Leu	Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu					
			820					825					830							
Ala	Arg	Asp	Pro	Tyr	Cys	Ala	Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val					
		835					840					845								
Ser	Leu	Tyr	Gln	Pro	Gln	Leu	Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile					
		850				855					860									
Glu	Gly	Ala	Ser	Ala	Lys	Asp	Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser					
865					870					875					880					
Pro	Ser	Phe	Val	Pro	Thr	Gly	Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe					
				885					890					895						
Gln	Pro	Asn	Thr	Val	Asn	Thr	Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu					
			900					905					910							
Ala	Thr	Arg	Leu	Trp	Leu	Arg	Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala					
		915					920					925								
Ser	Cys	His	Val	Leu	Pro	Thr	Gly	Asp	Leu	Leu	Val	Gly	Thr	Gln						
	930					935					940									
Gln	Leu	Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu	Gly	Phe	Gln	Gln						
945					950					955				960						
Leu	Val	Ala	Ser	Tyr	Cys	Pro	Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asn					
				965					970					975						

1075 1080 1085  
Ala His Leu Val His Asp Pro Gln Ala Arg Cys Leu Lys Arg Ile Gln  
1090 1095 1100  
Thr  
1105

<210> 33  
<211> 3399  
<212> DNA  
<213> homo sapiens

<400> 33  
atgctgcgca ccgcgatggg cctgaggagc tggctcgccg ccccatgggg cgcgctgccg 60  
cctcggccac cgctgctgct gctcctgctg ctgctgctcc tgctgcagcc gccgcctccg 120  
acctggggcg tcagcccccg gatcagcctg cctctgggct ctgaagagcg gccattcctc 180  
agattcgaag ctgaacacat ctccaactac acagcccttc tgctgagcag ggatggcagg 240  
accctgtacg tgggtgctcg agaggccctc tttgactca gtagcaacct cagcttcctg 300  
ccaggcgggg agtaccagga gctgcttttg ggtgcagacg cagagaagaa acagcagtgc 360  
agcttcaagg gcaaggaccc acagcgcgac tgtcaaaact acatcaagat cctcctgccg 420  
ctcagcggca gtacactgtt cactgtggc acagcagcct tcagcccat gtgtacctac 480  
atcaacatgg agaacttcac cctggcaagg gacgagaagg ggaatgtcct cctggaagat 540  
ggcaagggcc gttgtccctt cgacccgaat ttcaagtcca ctgccctggt ggttgatggc 600  
gagctctaca ctggaacagt cagcagcttc caagggaatg acccgccat ctcgcgagc 660  
caaagccttc gcccaccaa gaccgagagc tccctcaact ggctgcaaga cccagctttt 720  
gtggcctcag cctacattcc tgagagcctg ggcagcttgc aaggcgatga tgacaagatc 780  
tactttttct tcagcgagac tggccaggaa tttgagttct ttgagaacac cattgtgtcc 840  
cgcattgccc gcatctgcaa gggcgatgag ggtggagagc ggggtgctaca gcagcgctgg 900  
acctccttcc tcaaggccca gctgctgtgc tcacggcccg acgatggctt ccccttcaac 960  
gtgctgcagg atgtcttcac gctgagcccc agccccagg actggcgtga cacccttttc 1020  
tatggggtct tcaattccca gtggcacagg ggaactacag aaggctctgc cgtctgtgtc 1080  
ttcacaatga aggatgtgca gagagtcttc agcggcctct acaaggaggt gaaccgtgag 1140  
acacagcagt ggtacaccgt gaccaccccg gtgcccacac cccggcctgg agcgtgcatc 1200  
accaacagtg cccgggaaag gaagatcaac tcatccctgc agctcccaga ccgctgctg 1260  
aacttctca aggaccactt cctgatggac gggcaggtcc gaagccgcat gctgctgctg 1320  
cagccccagg ctgctacca gcgctggct gtacaccgag tccctggcct gcaccacacc 1380  
tacgatgtcc tcttctggtg cactggtgac ggccggctcc acaaggcagt gagcgtgggc 1440  
ccccgggtgc acatcattga ggagctgcag atcttctcat cgggacagcc cgtgcagaat 1500  
ctgctcctgg acaccacag ggggtgctg tatgcccct cactcggg cgtagtccag 1560  
gtgcccagtg ccaactgcag cctgtacagg agctgtgggg actgcctcct cgcccgggac 1620  
ccctactgtg cttggagcgg ctccagctgc aagcagctca gcctctacca gcctcagctg 1680  
gccaccaggc cgtggatcca ggacatcgag ggagccagcg ccaaggacct ttgcagcgcg 1740  
tcttcggttg tgtccccgtc ttttgtacca acaggggaga agccatgtga gcaagtccag 1800  
ttccagccca acacagtga cactttggcc tgcccgtcc tctccaacct ggcgaccgga 1860  
ctctggctac gcaacggggc cccgctcaat gcctcgccct cctgccacgt gctaccact 1920  
ggggacctgc tgctggtggg caccacacag ctgggggagt tccagtgtg gtcactagag 1980  
gagggcttcc agcagctggt agccagctac tgcccagagg tgggtggagga cggggtggca 2040  
gaccaaacag atacggtgcc cacaccccg cctggagcgt gcatcaccaa cagtgcccg 2100  
gaaaggaaga tcaactcatc cctgcagctc ccagaccgag tgctgaactt cctcaaggac 2160  
cacttctga tggacgggca ggtccgaagc cgcagtgtgc tgctgcagcc ccaggctcgc 2220  
taccagcgcg tggctgtaca ccgctccct ggctgcacc acacctacga tgtcctcttc 2280  
ctgggcactg gtgacggccg gctccacaag gcagtgcagc tgggcccccg ggtgcacatc 2340  
attgaggagc tgcagatctt ctcatcgga cagcccgtgc agaactctgct cctggacacc 2400  
cacagggggc tgctgtatgc ggcctcacac tcgggcgtag tccaggtgcc catggccaac 2460  
tgcagcctgt acaggagctg tggggactgc ctctcgccc gggacccta ctgtgcttgg 2520  
agcggctcca gctgcaagca cgtcagctc taccagctc agctggccac caggccgtgg 2580  
atccaggaca tcgaggggag cagcgccaag gacctttgca gcgctcttc ggttggtgcc 2640

```

ccgtcttttg taccaacagg ggagaagcca tgtgagcaag tccagttcca gccaacaca 2700
gtgaacactt tggcctgccc gtcctctccc aacctggcga cccgactctg gctacgcaac 2760
ggggcccccg tcaatgcctc ggctctctgc cactgtgtac ccactgggga cctgctgctg 2820
gtgggcaccc aacagctggg ggagttccag tgcgtgtcac tagaggaggg cttccagcag 2880
ctggtagcca gctactgccc agaggtggtg gaggacgggg tggcaaacca aacagatgag 2940
ggtggcagtg taccggtcat tatcagcaca tcgcgtgtga gtgcaccagc tgggtggcaag 3000
gccagctggg gtgcagacag gtcctactgg aaggagttcc tggatgatgtg cagcgtcttt 3060
gtgctggccg tgctgtctcc agttttattc ttgctctacc ggcaccggaa cagcatgaaa 3120
gtcttcctga agcaggggga atgtgccagc gtgcacccca agacctgccc tgtggtgctg 3180
ccccctgaga cccgccact caacggccta gggcccccta gcaccccgct cgatcaccga 3240
gggtaccagt ccctgtcaga cagcccccg gggggccgag tcttactga gtcagagaag 3300
aggccactca gcatccaaga cagcttcgtg gaggtatccc cagtgtgccc ccggccccgg 3360
gtccgccttg gctcggagat ccgtgactct gtggtgtga 3399

```

<210> 34  
 <211> 1132  
 <212> PRT  
 <213> homo sapiens

```

<400> 34
Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp Leu Ala Ala Pro Trp
1      5      10      15
Gly Ala Leu Pro Arg Pro Pro Leu Leu Leu Leu Leu Leu Leu
20      25      30
Leu Leu Leu Gln Pro Pro Pro Pro Thr Trp Ala Leu Ser Pro Arg Ile
35      40      45
Ser Leu Pro Leu Gly Ser Glu Glu Arg Pro Phe Leu Arg Phe Glu Ala
50      55      60
Glu His Ile Ser Asn Tyr Thr Ala Leu Leu Leu Ser Arg Asp Gly Arg
65      70      75      80
Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe Ala Leu Ser Ser Asn
85      90      95
Leu Ser Phe Leu Pro Gly Gly Glu Tyr Gln Glu Leu Leu Trp Gly Ala
100     105     110
Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys Gly Lys Asp Pro Gln
115     120     125
Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu Pro Leu Ser Gly Ser
130     135     140
His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser Pro Met Cys Thr Tyr
145     150     155     160
Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp Glu Lys Gly Asn Val
165     170     175
Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe Asp Pro Asn Phe Lys
180     185     190
Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr Thr Gly Thr Val Ser
195     200     205
Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg Ser Gln Ser Leu Arg
210     215     220
Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu Gln Asp Pro Ala Phe
225     230     235     240
Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly Ser Leu Gln Gly Asp
245     250     255
Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr Gly Gln Glu Phe Glu
260     265     270
Phe Phe Glu Asn Thr Ile Val Ser Arg Ile Ala Arg Ile Cys Lys Gly
275     280     285

```

Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg	Trp	Thr	Ser	Phe	Leu	290	295	300
Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp	Gly	Phe	Pro	Phe	Asn	305	310	315
Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser	Pro	Gln	Asp	Trp	Arg	325	330	335
Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln	Trp	His	Arg	Gly	Thr	340	345	350
Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met	Lys	Asp	Val	Gln	Arg	355	360	365
Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg	Glu	Thr	Gln	Gln	Trp	370	375	380
Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile	385	390	395
Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro	405	410	415
Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln	420	425	430
Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg	435	440	445
Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His	Thr	Tyr	Asp	Val	Leu	450	455	460
Phe	Leu	Gly	Thr	Gly	Asp	Gly	Arg	Leu	His	Lys	Ala	Val	Ser	Val	Gly	465	470	475
Pro	Arg	Val	His	Ile	Ile	Glu	Glu	Leu	Gln	Ile	Phe	Ser	Ser	Gly	Gln	485	490	495
Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg	Gly	Leu	Leu	Tyr	Ala	500	505	510
Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	Ala	Asn	Cys	Ser	Leu	515	520	525
Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Ala	530	535	540
Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	Tyr	Gln	Pro	Gln	Leu	545	550	555
Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	Ala	Ser	Ala	Lys	Asp	565	570	575
Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	Phe	Val	Pro	Thr	Gly	580	585	590
Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro	Asn	Thr	Val	Asn	Thr	595	600	605
Leu	Ala	Cys	Pro	Leu	Leu	Ser	Asn	Leu	Ala	Thr	Arg	Leu	Trp	Leu	Arg	610	615	620
Asn	Gly	Ala	Pro	Val	Asn	Ala	Ser	Ala	Ser	Cys	His	Val	Leu	Pro	Thr	625	630	635
Gly	Asp	Leu	Leu	Leu	Val	Gly	Thr	Gln	Gln	Leu	Gly	Glu	Phe	Gln	Cys	645	650	655
Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val	Ala	Ser	Tyr	Cys	Pro	660	665	670
Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr	Asp	Thr	Val	Pro	Thr	675	680	685
Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	690	695	700
Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	705	710	715
His	Phe	Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	725	730	735





<400> 35

catagcaggc	atggccttgc	tcactgagca	ttcactacat	gccagtgttg	cccgtggctt	60
tatatgtact	ctctccagcc	acccatgaag	tgctgttcat	agcactccgt	cctagatgaa	120
gaagctgagg	ttcagagtga	ttgtgtggct	tgctaaaagt	ccacaaaata	tggaaggtag	180
tgaattcttc	tgacagaaga	acctgtgtgc	tcaaccactg	gattctacca	cttccaggag	240
caagaaaaac	aagaggccgg	tagcggggaa	aatggtttgg	ggaacggaga	tgaagccatt	300
tatttacatc	tggtgccaga	ccctgggtaa	aagctgccag	tgagttttga	aggcagtgtg	360
agtgtcgacc	cggggtggat	gccctctgct	gcagaaggcg	ctgcccacag	gaagctccca	420
gccctgagga	cttggcagcc	attggctgat	ttgaaagaat	acacagggtg	tgccagctgg	480
tgctcgcttc	tcttcaacat	gtactgatgc	tgcagctgag	ctgctgcccc	gcccctgggg	540
agaagacatc	agcagcatgc	ccagccaggg	caggggtggag	agctgcagct	gcagggtccgg	600
aggcgggggc	ccccggggcg	actcgggggc	ggaccgcggg	gcggagctgc	cgcccgtgag	660
tccggccgag	ccacctgagc	ccgagccggc	ggacaccgtc	gtcctgtctc	tccgaatgct	720
gcgcaccgcg	atgggcctga	ggagctggct	cgccgcccc	tggggcgcg	tgccgcctcg	780
gccaccgctg	ctgctgtctc	tgctgtctgt	gctcctgtct	cagccgcgcg	ctccgacctg	840
ggcgctcagc	ccccggatca	gectgcctct	gggtctgaa	gagcggccat	tcctcagatt	900
cgaagctgaa	cacatctcca	actacacagc	ccttctgtct	agcagggtg	gcaggacctt	960
gtacgtgggt	gctcgagagg	ccctctttgc	atcagtagc	aaacctgact	tcctgccagg	1020
cggggagtag	caggagctgc	tttgggggtc	agagcgagag	aagaaacagc	agtgcagctt	1080
caagggcaag	gaccacagc	gogagctgca	aaactacatc	aagatcctcc	tgccgctcag	1140
cggcagtcac	ctgttcacct	gtggcacagc	agccttcagc	cccatgtgta	cctacatcaa	1200
cattggaaac	ttcaccttgg	caagggacga	gaaggggaat	gtcctcctgg	aagatggcaa	1260
gggcggttgt	cccttcgacc	cgaattttcaa	gtccactgcc	ctgggtggtg	atggcgagct	1320
ctacactgga	acagtcagca	gcttccaagg	gaatgacccg	gccatctcgc	ggagccaaag	1380
ccttcgcccc	accaagaccg	agagctccct	caactggctg	caagaccag	cttttgtggc	1440
ctcagcctac	attcctgaga	gcctgggcag	cttgcaaggc	gatgatgaca	agatctactt	1500
tttcttcagc	gagactggcc	aggaatttga	gttcttttag	aacaccattg	tgtcccgcac	1560
tgcccgcatc	tgcaagggcg	atgaggggtg	agagcgggtg	ctacagcagc	gctggacctc	1620
cttctcgaag	gccagctgc	tgtgtctcag	gcccagacat	ggcttcccc	tcaacgtgct	1680
gcaggatgtc	ttcacgctga	gccccagccc	ccaggactgg	cgtgacaccc	ttttctatgg	1740
ggtcttcaact	tcccagtggc	acaggggaac	tacagaaggc	tctgccgtct	gtgtcttcac	1800
aatgaaggat	gtgcagagag	tcttcagcgg	cctctacaag	gaggtgaacc	gtgagacaca	1860
gcagtggtag	accgtgaccc	acccggtgcc	cacaccccg	cctggagcgt	gcacaccaa	1920
cagtgcgccg	gaaaggaaga	tcaactcacc	cctgcagctc	ccagaccgcg	tgttgaactt	1980
cctcaaggac	cacttctctg	tggacgggca	ggtcgaagc	cgcctgtctg	tgtctgagcc	2040
ccaggctcgc	taccagcgcg	tggctgtaca	ccgcgtccct	ggcctgcacc	acacctacga	2100
tgtctctctc	ctgggcactg	gtgacggccg	gtctccacaag	gcagtgcagc	tgggcccccg	2160
ggtgcacatc	attgaggagc	tgcagatctt	ctcatcggga	cagcccgctg	agaatctgct	2220
cctggacacc	cacagggggc	tgtgtatgct	ggcctcacac	tcgggcgtag	tccagggtgcc	2280
catggccaac	tgcagcctgt	acaggagctg	tggggactgc	ctcctcgccc	gggaccccta	2340
ctgtgcttgg	agcggctcca	gctgcaagca	cgtcagcctc	taccagcctc	agctggccac	2400
caggccgtgg	atccaggaca	tcgaggggag	cagcgccaag	gacctttgca	gcgcgtcttc	2460
ggttgtgtcc	cctgtttttg	taccaacagg	ggagaagcca	tgtgagcaag	tccagttcca	2520
gcccacacac	gtgaacactt	tggcctgccc	gctcctctcc	aacctggcga	cccgactctg	2580
gctacgcaac	ggggcccccg	tcaatgcctc	ggcctcctgc	cacgtgctac	ccactggggg	2640
cctgtgtctg	gtgggcaccc	aacagctggg	ggagttccag	tgtgtgtcac	tagaggaggg	2700
cttccagcag	ctggtagcca	gctactgccc	agaggtgggt	gaggacgggg	tggcagacca	2760
aacagatgag	ggtggcagtg	taccggtcat	tatcagcaca	tcgcgtgtga	gtgcaccagc	2820
tggtggcaag	gccagctggg	gtgcagacag	gtcctactgg	aaggagtcc	tggtgatgtg	2880
cacgtctctt	gtgttgccg	tgtgtctccc	agttttattc	ttgtcttacc	ggcaccggaa	2940
cagcatgaaa	gtcttctctg	agcaggggga	atgtgccagc	gtgcacccca	agacctgcc	3000
tgtggtgctg	ccccctgaga	cccgcacctc	caacgcgcta	ggggcccccta	gcaccccgct	3060
cgatcaccca	gggtaccagt	ccctgtcaga	cagccccccg	ggggcccgag	tcttactgga	3120
gtcagagaag	aggccaactc	gcattccaaga	cagcttcgtg	gaggtatccc	cagtgtgccc	3180
ccggcccccg	gtccgccttg	gctcggagat	ccgtgactct	gtggtgtgag	agctgacttc	3240
caagggacgc	tgccctggct	tcaggggctg	tgaatgctcg	gagaggggtc	actggacctc	3300

